



10/635,873

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:)
Alice H. Howe) Application No: 10/635,873
TENNIS RACQUET EQUIPPED) Art Unit 3711
WITH A TENNIS BALL RETRIEVER) Examiner: Raleigh W. Chiu
Attorney Docket No.: MPH 03-13) Filing Date: 08/05/2003

Mail Stop Petition
Commissioner for Patents and Trademarks
P.O. Box 1450
Alexandria, VA 22313-1450

37 CFR 1.181 Petition**Remarks**

Applicant hereby petitions under 37 CFR 1.181 for the Director or other appropriate U.S. Patent Office Official to exercise supervisory authority to instruct Primary Examiner Raleigh Chiu to enter in whole or in part the unentered evidence as originally set forth in Exhibits B-F of appellant's Appeal Brief of the captioned patent application and thereby permit such evidence to be part of applicant's Appeal Brief. An appropriate petition fee accompanies this petition.

The Primary Examiner, Raleigh Chiu, notified applicant's attorney, in a Notification of Non-compliance Appeal Brief, that ` since unentered evidence is not permitted in the brief, reference to evidence set forth in Exhibits B-F of the appendix is not permitted. Applicant respectfully submits that the non-entry of Exhibits B-F of the appendix in applicant's appeal brief is in error and should be withdrawn.

In support of this petition, appellant submits as proof of the error in not admitting Exhibits B-F as evidence in applicant's current Appeal Brief, the following documents:

- Exhibit 1: Exhibits B-F of applicant's Appeal Brief in Appeal No. 2004-2020 of applicant's parent application, serial number 09/655,743.
- Exhibit 2: Exhibits B-F as filed with applicant's Appeal Brief for the captioned application which Exhibits B-F were denied entry for non-compliance.
- Exhibit 3: Board of Patent Appeals and Interferences Decision on Appeal, Appeal No. 2004-2020.
- Exhibit 4: Applicant's First Response of Office Action Paper No./Mail Date 07/24/2004.
- Exhibit 5: Applicant's second Response to Office Action dated 02/19/2005.
- Exhibit 6: Applicant's final Response to Office Action dated 08/06/2005
- Exhibit 7: Notification Non-Compliant Appeal Brief dated 03/21/2006.

It is respectfully submitted that there exists no basis for the denial of Exhibits B-F in appellant's Appeal Brief. Exhibits B-F should have been entered as requested by applicant's attorney and made a part of the captioned application as well as applicant's Appeal Brief herein. The Examining Attorney must have been fully aware of the contents of Exhibits B-F since these same Exhibits B-F were also the Appeal Brief Exhibits B-F of Appeal 2004-2020 as well as being the substance of Office Action responses for the captioned application.

Exhibits B-F as filed in the appendix of the appeal brief for the captioned application are identical to those made of record and filed with appellant's appeal brief of the parent application serial number 09/655,743 except for the last two pages of Exhibit C. Under the aforementioned circumstances, Applicant should be entitled to entry of Exhibits B-F which are identical to those made of record and part of the appeal record for the parent application, serial number 09/655,74.

Each of applicant's responses to the Examiner's Office Actions leading up to the current

appeal referred to and relied upon in Appeal No. 2004-2020 of the parent application, serial number 09/655,743, of which this captioned application is a continuing application. The claims and issues of patentability are essentially the same in the current appeal of this continuation application as existed in the parent application, serial number 09/655,743, except for the newly relied upon U.S. Patent No. 6,401,997 by Smerdon Jr.

Applicant's first response noted and corrected an inadvertent reference to applicant's parent application serial number 09/655,743. Applicant in each response to successive Office Actions extensively referred to the favorable Board of Appeals decision of Appeal Number 2004-2020 of September 21, 2004, and the facts of record, while explicitly pointing out that the same controlling holdings and issues apply including the same factual evidence of record herein as filed and made of record in the 09/655,743 parent application.

In applicant's response the Office Action of February 19, 2005, applicant's attorney clearly indicated the reliance of parent application prosecution history and the Board of Appeals decision by noting:

"This application is a continuing application of parent application serial No. 09/655,743 within which the more narrowly defined claims of this application were deemed allowable in the decision of the Patent and Trademark Board of Appeals of Case No. 2004-2020. The Board of Appeals reversed the Examiner in toto on grounds essentially identical to those involved in the 35USC103(a) rejections of this Office Action except for the newly cited secondary reference of U.S. Patent No. 6,401,997 to Smerdon Jr.

The appealed claims in the parent application were deemed allowable, patentably distinct over essentially the same 35USC103(a) rejection, involving the same references, by the same Examining Attorney in the decision of the Board of Appeals except that the appealed claims were broader in scope than the currently rejected claims of this application. The salient issue of the current 35USC103(a) rejections hinges upon whether or not this newly cited Smerdon patent provides the necessary 35USC103(a) teachings so as to cure the prior art defects as astutely noted by the Board of Appeals in Appeal No. 2004-2020. Applicant respectfully submits that the Smerdon Jr. Patent fails to correct the 35USC103(a) deficiencies of the cited art of record. The Board of Appeals decision therefore dictates that the 35USC103(a) rejections herein should be withdrawn and that the applicant's claims be allowed." (e.g. see page 1)

More importantly, on page 4 of applicant's May 12, 2005, Response, applicant's attorney clearly directed the Examining Attorney to make Exhibits B-F of the parent application Appeal Brief a part of the captioned application file record by stating:

"Applicant incorporates by reference herein the decision of the Board of Appeals in which the same grounds of rejecting applicant's claims herein was firmly and resoundly reversed by the Board of Appeals. Applicant also incorporates by reference all of the responses including all the papers filed by applicant's attorney in the parent application including those of the appeal before the Board of Appeals as part of this response."

In the ensuing response to the Office Action of August 11, 2005, applicant's attorney again reiterated in the paragraph beginning on page 2 that the Appeal Brief papers of the parent application should be made a part of the current record by again stating:

"Applicant incorporates by reference herein the decision of the Board of Appeals in which the same grounds of rejecting applicant's claims herein were resoundly reversed by the Board of Appeals. Applicant also incorporates by reference herein all of the responses including all the papers filed by applicant's attorney in the parent application including those of the appeal before the Board of Appeals as part of this response."

Accordingly, the file history record of this application clearly establishes that all of the Exhibits B-F of the parent application appeal brief of appeal no. 2004-2020 were duly considered and should have been made a part of the file history and record of the captioned application including the file record on appeal.

A basic underlying premise of any 35USC103(a) rejection hinges upon a factual resolution of underlying state of the prior art (as a whole) at the time the invention was made and the invention, as a whole, including not only the invention as claimed but also any unexpected attributes of the invention. Neither the Examiner nor the applicant should be entitled to exclude any evidence relevant to resolution of those factual determinations essential to obviousness decision as required under the John Deere decision. Unfortunately, selective exclusion of evidence relevant to the obviousness issue can unjustly hinder both the Board of Appeals and

applicant's interest in reaching a proper resolution of the 35USC103(a) issues. The Examiner of record should be fully cognizant of applicant's position (as was the Board of Appeals in the parent application, serial number 09/655,743) that the hook and loop fastener art embraces an extremely broad and sophisticated technological field within which an isolated and unknown hook component exhibited unexpected superior efficacy in retrieving an grounded tennis ball notwithstanding repeated acknowledgements by the art that such hooked materials were completely unsuited for such a purpose. Herein the applicant has repetitively relied upon Exhibits B-F in the prosecution of this application as well as the parent application and specifically reiterated on numerous occasions (prior to appeal) that Exhibits B-F should be made part of the captioned application file history.

An appeal to the Board of Appeals should not be unjustly administratively controlled by selectively determining what facts should be made of record especially when there exist repeated request of entry by an applicant's attorney and the entry of such evidence is material to the obviousness issues. Both the applicant and the Patent Office are held to a high standard of awareness of what factors are important in determining the obviousness issue. The withholding of factual information contravenes the statutory mandate of 35USC103(a). It is inequitable to intentionally withhold 35USC103(a) material facts from an appealable record.

No democratic adjudicating tribunal can survive if the administrative agency may unilaterally decide what favorable facts should be adjudicated and what unfavorable facts are not subject to adjudication. How can there be any fair resolution of 35USC103(a) issues if only those facts which are relevant to one position are made of record? Any fair and equitable resolution of the 35USC103(a) issues necessitates that those facts already of record and previously of record and considered by the Board of Appeals in the parent application appeal be

allowed as evidence as Exhibits B-F.

Applicant therefore specifically requested that the Exhibits B-F be allowed to be made a part of the captioned appeal brief record and that Examiner Chiu be instructed to make entry thereof. The unexpected results and unobviousness of the efficacy of the very narrowly defined hook material amongst a host of other hook materials acknowledged by the art to be ineffective as a tennis ball retriever represents the antithesis of obviousness. It is therefore requested that the Examining Attorney be required to make entry thereof as requested on numerous occasions by the applicant.

Applicant respectfully submits that the denial of the entry of Exhibits B-F in the Notification of Non-Compliance Appeal Brief is in error and that the Exhibits B-F as filed in the parent Application Appeal Brief should be permitted to be entered as part of applicant's appeal brief herein. In the interim, applicant will amend the currently filed appeal brief to comply with the Notification of Non-Compliance but respectfully request the right to re-enter Exhibits B-F upon a favorable ruling of this petition.

Dated this 4th day of April, 2006.

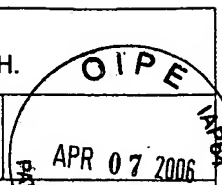
Respectfully submitted,

M. Paul Hendrickson

M. Paul Hendrickson
Attorney for appellant
Registration No. 24523

Post Office Box 508
Holmen, Wisconsin 54636-0508

Phone: 608-526-4422
Fax: 608-526-2711

Notification of Non-Compliant Appeal Brief (37 CFR 41.37)	Application No. 10/635,873	Applicant(s) HOWE, ALICE H.	
	Examiner Raleigh Chiu	Art Unit 3711	

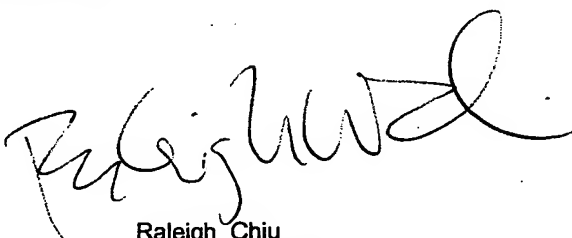
--The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

The Appeal Brief filed on 05 January 2006 is defective for failure to comply with one or more provisions of 37 CFR 41.37.

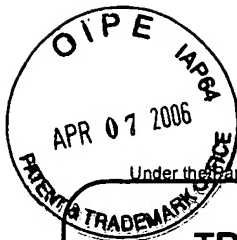
To avoid dismissal of the appeal, applicant must file an amended brief or other appropriate correction (see MPEP 1205.03) within **ONE MONTH or THIRTY DAYS** from the mailing date of this Notification, whichever is longer. **EXTENSIONS OF THIS TIME PERIOD MAY BE GRANTED UNDER 37 CFR 1.136.**

1. ☐ The brief does not contain the items required under 37 CFR 41.37(c), or the items are not under the proper heading or in the proper order.
2. ☐ The brief does not contain a statement of the status of all claims, (e.g., rejected, allowed, withdrawn, objected to, canceled), or does not identify the appealed claims (37 CFR 41.37(c)(1)(iii)).
3. ☐ At least one amendment has been filed subsequent to the final rejection, and the brief does not contain a statement of the status of each such amendment (37 CFR 41.37(c)(1)(iv)).
4. ☐ (a) The brief does not contain a concise explanation of the subject matter defined in each of the independent claims involved in the appeal, referring to the specification by page and line number and to the drawings, if any, by reference characters; and/or (b) the brief fails to: (1) identify, for each independent claim involved in the appeal and for each dependent claim argued separately, every means plus function and step plus function under 35 U.S.C. 112, sixth paragraph, and/or (2) set forth the structure, material, or acts described in the specification as corresponding to each claimed function with reference to the specification by page and line number, and to the drawings, if any, by reference characters (37 CFR 41.37(c)(1)(v)).
5. ☐ The brief does not contain a concise statement of each ground of rejection presented for review (37 CFR 41.37(c)(1)(vi)).
6. ☐ The brief does not present an argument under a separate heading for each ground of rejection on appeal (37 CFR 41.37(c)(1)(vii)).
7. ☐ The brief does not contain a correct copy of the appealed claims as an appendix thereto (37 CFR 41.37(c)(1)(viii)).
8. ☐ The brief does not contain copies of the evidence submitted under 37 CFR 1.130, 1.131, or 1.132 or of any other evidence entered by the examiner and **relied upon by appellant in the appeal**, along with a statement setting forth where in the record that evidence was entered by the examiner, as an appendix thereto (37 CFR 41.37(c)(1)(ix)).
9. ☒ The brief does not contain copies of the decisions rendered by a court or the Board in the proceeding identified in the Related Appeals and Interferences section of the brief as an appendix thereto (37 CFR 41.37(c)(1)(x)).
10. ☒ Other (including any explanation in support of the above items):

Reference to unentered evidence is not permitted in the brief. See 37 CFR §§ 41.33 and 41.37(c)(2). Therefore, references to evidence set forth in Exhibits B-F of the appendix are not permitted.



Raleigh Chiu
Primary Examiner
Art Unit: 3711



PTO/SB/21 (09-04)

Approved for use through 07/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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**TRANSMITTAL
FORM**

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

Application Number	10/635,873
Filing Date	08/05/2003
First Named Inventor	Alice H. Howe
Art Unit	3711
Examiner Name	Raleigh W. Chiu
Attorney Docket Number	MPH 03-13

ENCLOSURES (Check all that apply)

<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Reply to Missing Parts/ Incomplete Application <input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input checked="" type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____ <input type="checkbox"/> Landscape Table on CD	<input type="checkbox"/> After Allowance Communication to TC <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input type="checkbox"/> Other Enclosure(s) (please identify below):
Remarks		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	M. Paul Hendrickson Law Office		
Signature	<i>M. Paul Hendrickson</i>		
Printed name	M. Paul Hendrickson		
Date	04/04/2006	Reg. No.	24523

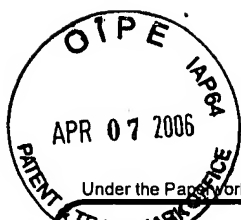
CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature	<i>Sharyl L. Breu</i>		
Typed or printed name	Sharyl L. Breu	Date	04/04/2006

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL

For FY 2006

☒ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 400.00

Complete if Known

Application Number	10/635,873
Filing Date	08/05/2003
First Named Inventor	Alice H. Howe
Examiner Name	Raleigh W. Chiu
Art Unit	3711
Attorney Docket No.	MPH 03-13

METHOD OF PAYMENT (check all that apply)☒ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____☐ Deposit Account Deposit Account Number: _____ Deposit Account Name: _____

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☐ Charge fee(s) indicated below☐ Charge fee(s) indicated below, except for the filing fee☐ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17☐ Credit any overpayments

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

FEE CALCULATION (All the fees below are due upon filing or may be subject to a surcharge.)**1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES**Fee Description**

Each claim over 20 (including Reissues)

Fee (\$)	Small Entity Fee (\$)
50	25
200	100
360	180

Each independent claim over 3 (including Reissues)

Multiple dependent claims

Total Claims	Extra Claims	Fee (\$)	Fee Paid (\$)
- 20 or HP =	x	=	

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims	Extra Claims	Fee (\$)	Fee Paid (\$)
- 3 or HP =	x	=	

HP = highest number of independent claims paid for, if greater than 3.

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
- 100 =	/ 50 =	(round up to a whole number) x	=	

4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount)

Other (e.g., late filing surcharge): Petition fee

Fees Paid (\$)

400.00

SUBMITTED BY

Signature	M. Paul Hendrickson	Registration No. (Attorney/Agent) 24523	Telephone 608-526-4422
Name (Print/Type)	M. Paul Hendrickson	Date 04/04/2006	

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



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In re application of:)	
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WITH A TENNIS BALL RETRIEVER)	Examiner: Raleigh W. Chiu
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Attorney Docket No.: MPH 03-13)	Filing Date: 08/05/2003

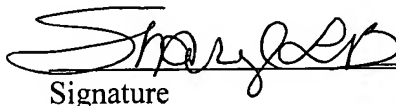
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Alexandria, VA 22313-1450

Accompanying this Certificate of Mailing are the following materials:

1. Transmittal Form;
2. Fee Transmittal Form;
3. 37 CFR 1.181 Petition;
4. Check No. 8281 in the amount of \$400.00 for the petition fee;
5. Certificate of Mailing Date;
6. Self-addressed postcard for return acknowledging receipt of all of the above.

CERTIFICATE OF MAILING

I hereby certify that this correspondence and the documents referred to as attached therein are being deposited with the United States Postal Service on April 4, 2006, in an envelope with sufficient postage as first class mail addressed to: Mail Stop Petition, Commissioner for Patents and Trademarks, P.O. Box 1450, Alexandria, VA 22313-1450.


Signature

Sharyl L. Breu
Typed or printed name

APPENDIX

EXHIBIT B

Pages B1-B10

Exemplary listing of hook and loop product and processing patents.

Patents - Few of many hundreds

U.S. Patent No.

2,717,437	3,009,235	3,241,881
3,313,511	3,027,566	3,338,291
2,933,797	2,976,914	3,328,081
3,485,529	3,279,008	3,147,527
3,154,837	3,196,490	3,136,026
3,546,754	3,550,223	3,550,837
3,562,044	3,562,770	3,577,607
3,586,060	3,594,863	3,594,865
3,595,059	3,629,032	3,665,584
3,673,301	3,695,976	3,708,382
3,715,415	3,732,604	3,735,468
3,781,398	3,801,245	3,943,981
4,024,003	3,405,430	3,527,001
3,913,183	4,041,549	4,169,303
4,290,174	4,615,084	4,617,214
3,594,873	5,349,991	5,515,583
6,202,264	3,031,730	3,138,841
3,147,528	3,138,841	3,147,528
3,192,589	3,261,069	3,607,995
3,718,725	3,770,359	3,785,012
3,808,301	3,808,648	3,900,652
4,454,183	4,628,709	

and many, many more.

U.S. Patent No. 4,910,062 - Exemplary teachings.

First Sentence "Background Art": The art is replete with sheet materials that can be cut into smaller pieces to form portions of fasteners, and methods for making such sheet materials. U.S. Pat. Nos. 2,933,797; 3,009,235; 3,136,026; 3,154,837; 3,577,067; 3,673,301; 3,943,981; and 4,024,003 provide illustrative examples.

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Searching All Years...

Results of Search in All Years db for:
hook AND "loop fastener": 5215 patents.
Hits 1 through 50 out of 5215

Exemplary of
remaining 5215 Hits

[Next 50 Hits](#)[Jump To](#) [Refine Search](#)

PAT. NO.	Title
1 6,453,525	Double-bow shoe lace device
2 6,453,493	Covers for support pillows
3 6,453,475	Convertible visor/cap with a plurality of crown supports
4 6,453,204	Magnetic electrode for delivering energy to the body
5 6,451,405	Oil tarp assembly for heavy machinery
6 6,451,239	Process of making a hook fastener using radio frequency heating
7 6,450,944	Acceleration protective suit
8 6,450,895	Golf practice device with adjustable golf ball tee platform and adjustable leg stance platform
9 6,450,168	Infant sleeping blanket/garment for use with medical devices
10 6,450,131	Forward bending motion control harness
11 6,449,881	Detachable shoe wallet
12 6,449,777	Child-proof eyewear retainer strap assembly
13 6,449,770	Restraining garment device
14 6,448,742	Low profile battery pack with aircraft power provisions
15 6,447,362	Rotating musical remote control mobile device with detachable toys
16 6,447,353	Toddler/adult float jacket
17 6,447,165	Shipping container that can be stiffened
18 6,446,994	Bicycle fender system
19 6,446,852	Belt assembly for storage and inventory of tools
20 6,446,831	System for dispensing aprons
21 6,446,751	Apparatus and method for reducing noise levels
22 6,446,688	Carry bag with pouch insert and cover
23 6,446,577	Insulated cover for portable kennel
24 6,446,361	Transformable slipper toy
25 6,446,269	Concealed lower body garment support belt
26 6,443,986	Self-forming prosthetic device and method of making the same
27 6,443,805	Bra shelf and application thereof
28 6,443,787	Flying ski

- 29 [6,443,655](#)  [Flood barrier](#)
30 [6,443,617](#)  [Resealable sack or bag](#)
31 [6,443,525](#)  [Vehicle seat assembly and fastening device](#)
32 [6,443,499](#)  [Apparatus for pre-conditioned air hoses and a method of assembling pre-conditioned air](#)
33 [6,443,415](#)  [Computer monitor organizer assembly](#)
34 [6,443,407](#)  [Accessory tray for a tripod](#)
35 [6,443,335](#)  [Rapid comestible fluid dispensing apparatus and method employing a diffuser](#)
36 [6,443,297](#)  [Pulley lagging with hook and loop fastener attachment system](#)
37 [6,443,187](#)  [Aligning woven loop elements to form mounting sleeves](#)
38 [6,443,101](#)  [Pet apparel with leash](#)
39 [6,442,889](#)  [Insect and animal traps and holder for same](#)
40 [6,440,526](#)  [Non-slip pad](#)
41 [6,439,958](#)  [Breast saver comfort](#)
42 [6,439,733](#)  [Removable helmet light system](#)
43 [6,439,637](#)  [Golf cart cover](#)
44 [6,439,537](#)  [Forming mold with recess having snap-fit end seal](#)
45 [6,439,432](#)  [Personal safety device](#)
46 [6,439,314](#)  [Aqua boot for horses](#)
47 [6,439,221](#)  [Method and apparatus for providing a portable preassembled grill](#)
48 [6,439,167](#)  [Pet collar for use with pet containment system](#)
49 [6,439,152](#)  [Device for marking the path along the ground of a rolling wheel](#)
50 [6,438,900](#)  [Storage chamber](#)
-

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United States Patent
Yoshida

4,646,397
March 3, 1987

Surface-type fastener

Abstract

A surface-type fastener comprising a pair of fabric fastener strips, one fastener strip having on its one surface a number of *hook*-shaped engaging elements engageable with a number of loop-shaped engaging elements on one surface of the other fastener strip. One surface of each fastener strip has a first region in which the engaging elements are disposed, and a second region devoid of engaging elements. The other surface of the individual fastener strip has, in registry with the first region, an area covered with synthetic resin.

Inventors: Yoshida; Hiroshi (Kurobe, JP)
Assignee: Yoshida Kogyo K. K. (Tokyo, JP)
Appl. No.: 744255
Filed: June 13, 1985

Foreign Application Priority Data

Jun 18, 1984[JP]

59-90592[U]

Current U.S. Class:

24/442; 24/443; 24/448

Intern'l Class:

A44B 013/00

Field of Search:

24/442,443,444,445,446,447,448,451,452,426 2/DIG. 6 112/265.1,406

References Cited [Referenced By]**U.S. Patent Documents**

3009235	Nov., 1961	de Mestral	24/445.
3136026	Jun., 1964	de Mestral	24/445.
3383738	May., 1968	Fox et al.	2/DIG.
3464094	Sep., 1969	Mates	24/443.
3525376	Aug., 1970	Muhlhauser	24/442.
3537108	Nov., 1970	Daniels	2/DIG.
3849840	Nov., 1974	Yamada et al.	24/448.
4089068	May., 1978	Swallow	2/DIG.
4139133	Feb., 1979	Repka	2/DIG.
4165555	Aug., 1979	Boxer et al.	24/444.
4212052	Jul., 1980	Chambard	2/DIG.

Foreign Patent Documents

2153599	Aug., 1973	DE	24/442.
57-15684	Apr., 1982	JP.	
57-27289	Jun., 1982	JP.	

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United States Patent
Erb

4,615,084
October 7, 1986

Multiple *hook* fastener media and method and system for making

Abstract

Multiple *hook*-fastener media in which many protruding hooks are formed at relatively high speed from suitable bendable and settable plastic material which may be different from the substrate to which these pre-formed hooks are subsequently bonded. Many rows of hooks are formed simultaneously, each row from a strand, for example, a monofilament of longitudinally oriented polymeric material. The formed strands are "set" into their multiple *hook* row configuration, and then these pre-formed rows of hooks are simultaneously bonded to the substrate. Thus, an attractive substrate of any reasonable width, for example, of three inches, six inches, a foot or a yard, may be used. The production method and system enable the number of hooks per square inch, either longitudinally or laterally or both, to be adjusted while running. The shank of each *hook* includes two legs, and the production method and machine can be adjusted while running for making hooks with crossed legs, uncrossed legs or divergent legs for achieving varieties of configurations and characteristics, as desired for various applications. Advantageously, the production can be changed for making taller or shorter hooks and for making hooks with differently shaped arcuate ends by exchanging one pair of meshing (interdigitating) shaping belts for another. The substrate material may be woven or unwoven and may comprise multiple layers including metal or plastic layers or both. The substrate with mounted hooks can be slit longitudinally for producing many *hook*-fastener tapes at relatively fast overall lineal speed. Consequently, the *hook*-fastener media of this invention with their various sizes, shapes, widths and characteristics, fabricated by relatively low-cost, high-speed production hold promise of becoming widely available, widely used, commodity-type products which will find their way into myriads of applications of benefit to human beings in years to come.

Inventors: Erb; George H. (Cuttingsville, VT)
Assignee: Erblok Associates (Charlottesville, VA)
Appl. No.: 643001
Filed: August 21, 1984

Current U.S. Class: 24/442; 24/306; 156/66; 264/296; 428/93; 428/100; 428/369
Intern'l Class: A44B 018/00
Field of Search: 24/306,442,445 156/66 264/235,296 428/93,100,369

References Cited [Referenced By]

U.S. Patent Documents			
3147528	Sep., 1964	Erb.	
3196490	Jul., 1965	Erb.	
3527629	Sep., 1970	Wylde	428/93.
3546754	Dec., 1970	Erb.	
3550223	Dec., 1970	Erb.	
3550837	Dec., 1970	Erb	229/45.
3562044	Feb., 1971	Erb	156/155.
3562770	Feb., 1971	Erb.	
3586060	Jun., 1971	Erb	139/46.

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United States Patent
Higashinaka

4,920,617
May 1, 1990

Separable fastener

Abstract

Described herein is a male fastener strip having a multitude of hooking elements on one side of substrate cloth, which is characterized in that the individual hooking elements are spaced from adjacent hooking elements by X(mm) and Y(mm) in the transverse and longitudinal directions of the fastener strip, respectively, such that X is between 2.0 and 4.0 mm, inclusive and X/Y is in the range of 0.5 to 3.5.

Inventors: Higashinaka; Yukitoshi (Iruma, JP)
Assignee: Kuraray Company, Ltd. (Kurashiki, JP)
Appl. No.: 266329
Filed: November 1, 1988

Foreign Application Priority Data

Jul 30, 1986[JP]

61-181154

Current U.S. Class:

24/442; 24/446; 24/450

Intern'l Class:

A44B 018/00

Field of Search:

24/442,446,452,449,445,443,444

References Cited [Referenced By]**U.S. Patent Documents**

<u>3405430</u>	Oct., 1968	Sidelman	24/450.
<u>3527001</u>	Sep., 1970	Kleemeier et al.	24/446.
<u>3913183</u>	Oct., 1975	Brumlik	24/442.
<u>4041549</u>	Aug., 1977	Atkinson	24/450.
<u>4169303</u>	Oct., 1979	Lemelson	24/446.
<u>4290174</u>	Sep., 1981	Kalleberg	24/444.
<u>4615084</u>	Oct., 1986	Erb	24/442.
<u>4617214</u>	Oct., 1986	Billarant	24/444.

Foreign Patent Documents

<u>754402</u>	Oct., 1970	BE	24/442.
<u>0038458</u>	Oct., 1981	EP.	
<u>241554</u>	Feb., 1987	EP	24/442.
<u>1810318</u>	Oct., 1970	DE.	
<u>3044410</u>	Oct., 1983	DE.	
<u>1580872</u>	May., 1968	FR.	

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United States Patent
Higashinaka, et al.

6,386,242
May 14, 2002

Hook fastener member to minimize damage to loops**Abstract**

A flexible **hook** fastener member having a **hook** density of 80 to 200 per cm.sup.2 and causing little damage to cooperating loop fastening elements. The loops for forming **hook** fastening elements are produced by thin monofilaments having a fineness of 100 to 200 deniers. The monofilament for forming the **hook** fastening elements are in reverse phase relation to the adjacent ground warps with respect to the ground wefts.

Inventors: Higashinaka; Yukitoshi (Fukui-ken, JP); Itoh; Hiroshi (Osaka-fu, JP)
Assignee: Kuraray Co., Ltd. (Kurashiki, JP)
Appl. No.: 618844
Filed: July 18, 2000

Foreign Application Priority Data

Jul 30, 1999[JP]

11-216238

Current U.S. Class:

139/391; 24/445

Intern'l Class:

A44B 018/00

Field of Search:

24/445 139/384 B,391

References Cited [Referenced By]**U.S. Patent Documents**

3594873	Jul., 1971	Hockmeyer, Jr.	139/391.
5349991	Sep., 1994	Okawa et al.	139/391.
5515583	May., 1996	Higashinaka	24/446.
6202264	Mar., 2001	Ishihara	24/445.

Foreign Patent Documents

6-52521	Jul., 1994	JP.
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Primary Examiner: Falik; Andy**Attorney, Agent or Firm:** Oblon, Spivak, McClelland, Maier & Neustadt, P.C.**Claims**

What is claimed is:

1. A **hook** fastener member with damage to the to cooperating loop fastening elements minimized, comprising:

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United States Patent
Provost, et al.

5,953,797
September 21, 1999

Hook fasteners and methods of manufacture**Abstract**

A *hook* fastener member having rows of molded *hook*-shaped fastener elements that lie in planes aligned with the rows, with generally planar plate portions at the outermost ends of at least some of the fastener elements, the plate portions lying generally parallel to the base of the fastener member. The plate portions can enhance engagement of the *hook* fastener members with mating *loop fastener* members, particularly with low loft non-woven *loop fastener* members. A method of making fastener members is provided. Molten resin is extruded and applied to a molding roller, creating preforms. The outermost portions of at least some of the preforms are flattened, thereby forming generally plate shaped portions. Disposable absorbent garments advantageously incorporate the *hook* fastener members.

Inventors: Provost; George A. (Litchfield, NH); Condon; Mark J. (Melrose, MA); Leak; A. Todd (Necnah, WI); Roslansky; Apiromraj S. (Little Chute, WI); Serbiak; Paul J. (Appleton, WI)
 Assignee: Velcro Industries B.V. (Curacao, NL)
 Appl. No.: 731061
 Filed: October 9, 1996

Current U.S. Class: 24/452; 24/304; 24/442; 24/446
 Intern'l Class: A44B 018/00
 Field of Search: 24/452,442,445,446,448,304

References Cited [Referenced By]

U.S. Patent Documents			
<u>3031730</u>	May., 1962	Morin	24/452.
<u>3138841</u>	Jun., 1964	Naimer	24/204.
<u>3147528</u>	Sep., 1964	Erb	24/204.
<u>3192589</u>	Jul., 1965	Pearson	24/204.
<u>3261069</u>	Jul., 1966	Mathison	24/204.
<u>3607995</u>	Sep., 1971	Chiba	264/15.
<u>3718725</u>	Feb., 1973	Hamano	264/163.
<u>3770359</u>	Nov., 1973	Hamano	425/305.
<u>3785012</u>	Jan., 1974	Billarant	24/204.
<u>3808301</u>	Apr., 1974	Pruden	24/80.
<u>3808648</u>	May., 1974	Billarant et al.	
<u>3900652</u>	Aug., 1975	Uraya et al.	428/92.
<u>4169303</u>	Oct., 1979	Lemelson	24/452.
<u>4290174</u>	Sep., 1981	Kalleberg	24/204.
<u>4454183</u>	Jun., 1984	Wollman	428/92.
<u>4628709</u>	Dec., 1986	Aeschbach et al.	

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United States Patent
Akeno, et al.

D457,053
May 14, 2002

Hook element piece for hook-and-loop fastener**Claims**

The ornamental design for a *hook* element piece for *hook-and-loop fastener*, as shown and described.

Inventors: Akeno; Mitsuru (Kurobe, JP); Minato; Tsuyoshi (Toyama-ken, JP)
 Assignee: YKK Corporation (Tokyo, JP)
 Appl. No.: 101309
 Filed: February 26, 1999

Foreign Application Priority Data

Sep 02, 1998[JP]

10-25157

Current U.S. Class:**Intern'l Class:****Field of Search:**

D8/382
0805/
D8/382 24/452,442,448,444,453

References Cited [Referenced By]

U.S. Patent Documents			
5067210	Nov., 1991	Kayaki	24/442.
D367419	Feb., 1996	Murasaki	D8/382.
D374813	Oct., 1996	Akeno	D8/382.
D376533	Dec., 1996	Akeno	D8/382.

Primary Examiner: Baynham; Holly
 Attorney, Agent or Firm: Hill & Simpson

Description

FIG. 1 is a front view of a *hook* element piece for a *hook-and-loop* fastener.
 FIG. 2 is a top plan view of the *hook* element piece of FIG. 1.
 FIG. 3 is a right side view of the *hook* element piece of FIG. 1.
 FIG. 4 is a base view of the *hook* element piece of FIG. 1.
 FIG. 5 is a cross-sectional view taken on line 5--5 of FIG. 2; and,
 FIG. 6 is a fragmentary perspective view of the *hook* element piece of FIG. 1.

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United States Patent
Provost, et al.

4,654,246
March 31, 1987

Self-engaging separable fastener**Abstract**

A self-engaging separable fastener is disclosed which comprises a base member of woven separable fastener material having at least two adjacent mating fastener sections. At least one section is defined by a plurality of loops upstanding from the base member, and the other section is defined by a plurality of hooks upstanding from the base member. The loops are formed of respective generally parallel rows of multifilament yarns interwoven into their respective base section so as to repeat the same loop direction and construction every predetermined number of picks and the hooks are cut from respective generally parallel rows of loops of monofilament yarns interwoven into their respective base section so as to repeat their loop direction and construction every predetermined number of picks, which latter number of picks is greater than the number of picks in which the direction of the multifilament loops is repeated. The density of the monofilament hooks is less than the density of the multifilament loops such that the sections of fastener material may be placed in face-to-face engagement by folding one section over the other and pressing the surfaces together and separated by peeling forces normal to the interfacial plane of engagement. Preferably the loops repeat themselves every four picks and the hooks repeat themselves every eight picks.

Inventors: Provost; George (Manchester, NH); Ouellette; Marcel C. (Bedford, NH)
Assignee: Actief, N.V. (Curacao, AN)
Appl. No.: 772591
Filed: September 5, 1985

Current U.S. Class: 428/88; 26/2R; 26/8C; 26/8R; 26/29R; 428/100
Intern'l Class: B32B 003/06
Field of Search: 428/88,92,100 139/2 28/214 26/2 R,8 R,8 C,29 R 156/72

References Cited [Referenced By]

U.S. Patent Documents			
4058853	Nov., 1977	Boxer et al.	428/100.
4165555	Aug., 1979	Boxer et al.	428/100.

Primary Examiner: McCamish; Marion C.
Attorney, Agent or Firm: Pennie & Edmonds

Claims**We claim:**

1. A self-engaging separable fastener which comprises a base member of woven separable fastener material having at least two adjacent mating fastener sections, at least one section defined by a plurality of loop-like engaging elements upstanding from said base member, the other section defined by a plurality of *hook*-type engaging elements upstanding from said base member, said loop-like engaging elements being formed of respective generally parallel rows of loops of multifilament yarns interwoven into their respective base section so as to

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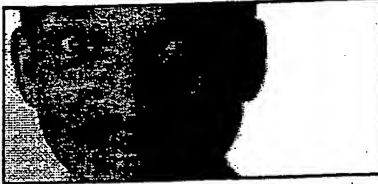
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Company Listings Provided by Thomas Register

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Company Name	Location	Description
Velcro USA Inc.	Manchester , NH	Hook & Loop Fastening Systems For Industrial Applications Where Separation & Rejoining Of Components Is Necessary, Or Where...
Middleburg Thread & Sewing Supply	Warminster , PA	Hook & Loop Fasteners, Sewing Quality, Pressure Sensitive, Heat Activated, Solvent Activated, Polyester, Display Pile....
Fasnap Corp.	Elkhart , IN	Wholesale Distributor Of Snap Fasteners, Turn & Directional Fasteners, Grommets, Panel Fasteners, Metal & Plastic Hardware,...
Toleto Fasteners International	San Ysidro , CA	Reusable Hook & Loop Cable Ties, Wrist Bands & Custom Fabricated Straps For A Variety Of Applications. Ultrasonic Welding &...
Loktite, Inc.	Timonium , MD	Dist. 3M & Other Hook & Loop Fasteners. Plain Backed, Pressure Sensitive, Dual Lock & Solvent / Heat Activated. Tapes,...
National Webbing Products Co.	Garden City Park , NY	Complete Line Of Hook & Loop In All Widths & Colors. On Spools Or Cut Pieces, Hook & Loop Straps
Levitt Industrial Textile Co.	Hicksville , NY	Dist. Of Velcro® Brand Hook & Loop Tape, Coins & VELCLOTH™ Brand Display Fabric. Special Colors, Widths, Lengths, Cut...
Gleicher Manufacturing Corp., A 3M Distributor	Scotch Plains , NJ	Rotary & Flatbed Die Cutting, Laser Cutting, Clean Room Processing, Tapes, VHB®, Dual Lock®, Bumpers®, A 3M Dist.
Bond Products Inc.	Philadelphia , PA	Suppliers Of Narrow Fabrics, Including Woven Tapes, Hook & Loop Tape & Dots, Drawcord Braids, Webbing, Elastics, Tying...
Bardco	St. Louis , MO	Reusable Hook & Loop Cable Ties, Wrist Bands & Custom Fabricated Straps For A Wide Variety Of Applications. Ultrasonic...
Touchtape, Inc.	St. Augustine , FL	Standard & PS Hook & Loop Tape & PS Dots Available. In-House Mfg. & Fabrication. Custom Orders
Perfectex Plus LLC	Huntington Beach , CA	Hook & Loop Fasteners. Sew-On Pressure-Sensitive Tapes. Heat & Solvent Activated Tapes. Fire-Retardant. Mil. Spec. Custom...
Action Fabricators	Grand Rapids , MI	Pressure Sensitive Adhesives, Tapes, Rubber Bumpers, Felt Feet & Pads. Die Cutting Of Various Materials. Specialize In...
Speedtech International, Inc.	Chicago , IL	Mfr. & Dist. Of Hook & Loop Fasteners. Stocking VELCRO®, SPEEDWRAP® & Other Brands
WBC Industries, Inc.	Westfield , NJ	Hook & Loop Fasteners
Rip 'N Grip Industries, Inc.	Palmdale , CA	Mfr. & Dist. Of Hook & Loop Fastening Tapes
American Cord & Webbing Co., Inc.	Woonsocket , RI	

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<u>Griff Paper & Film</u>	Fallsington , PA	Release Liners For The Pressure Sensitive Fastener Industry. Paper & Film Substrates. Printing Logos A Specialty
<u>T & W Converters, Inc.</u>	Glendale , CA	Tape Die-Cutting, Printing, Slitting, Rewinding & Laminating. In-House Printing Of Carton Sealing & Gummed Tape. Dist. Of...
<u>Adhesives & Tapes Industrial Supply</u>	Vista , CA	Adhesives, Sealants, Coatings, Encapsulants, Tapes & Application Equipment. Casting Resin, Acrylic, Anaerobic,...
<u>Granat Industries, Inc.</u>	Elk Grove Village , IL	Hook & Loop (Sewing Quality - Pressure Sensitive) All Widths In Stock. Thread, Webbing, Plastic & Metal Hardware, Rivets,...
<u>Hang-Ups Unlimited, Div. of Magna-Pole Products, Inc.</u>	Santa Monica , CA	Mfrs. Of Adhesive, Magnetic & Suction Cup Hooks & Mechanical Fasteners For Hanging Promotional & Permanent Indoor Displays,...
<u>FASTENation, Inc.</u>	Passaic , NJ	Dist. & Fabricator Of Hook & Loop Fasteners, 3M Dual Lock

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Can-Do National Tape	Nashville, TN	Pressure Sensitive Tapes For Every Application; Complete Line Of Converting Capabilities & Specialty Tapes; All Widths,...
WCL Company	City Of Industry, CA	Cable Ties & Clamps; Cuff Restraints; T-Clamps; Nail Clips; Hose Clamps; Wire Ducting; Patch Panels
MSC Industrial Supply Co.	Melville, NY	Supplier Of 450,000 Products From 2,500 Mfrs.: Cutting / Machine / Hand / Power Tools, MRO Supplies, Abrasives, Fasteners,...
TekSupply	South Windsor, CT	Wholesale Mfr. & Dist. Serving The Agricultural, Building, Repair & Maintenance Industries. Specializing In ClearSpan™...
Meyers, A., & Sons Corp.	New York, NY	Hook & Loop, Straps, Cut Pieces. Sew On & Pressure Sensitive. Fibre Optic Bundle Straps
World Fasteners, Inc.	Hampstead, MD	Over 195 Million Fasteners In Stock In All Materials, Sizes & Shapes. Military, Commercial, Fed-Milspec, AN-MS-NAS....
Seton Identification Products	Branford, CT	Hook & Loop
Linal, Inc.	Bristol, CT	Supplier & Mfr. Of Metal Snap Hooks & Snap Closures For Pet Leads, Tents, Marine, Military Specification & A Wide Range Of...
Nielsen / Sessions	Hartford, CT	Global Mfr. Of Latches, Hinges, Handles, Locks & Hardware. Standard & Custom Engineered Applications To Industrial,...
Clements Industries Inc.	South Hackensack, NJ	Mfrs. Of Pressure Sensitive Tape & Label Dispensers, Bag Sealers, Cable Ties, Packaging Machinery, Twist Tie Machines &...
Dienetics, Inc.	Grand Rapids, MI	Die Cut, Stamped & Lasercut Plastic, Rubber, Foam, Cork, Fibre & Adhesive Backed Non-Metallic Materials. Mfr. Of Laser Steel...
Pacific States Felt & Mfg. Co., Inc.	Hayward, CA	Cut To Specs.
HellermannTyton, A Spirent Co.	Milwaukee, WI	Cable Management Products Including Cable Ties, Clips, Clamps & Other Fasteners
Covert Co., Inc.	Baltimore, MD	Mfg. Adhesive Machinery For Bonding Hook & Loop Material To Plastics & Metals
Gem Office Products Co., LLC	Jacksonville, FL	Paper Clips, Brass & Steel Paper Fasteners, Metal Meat Skewers, Pin Tickets, Thumb Tacks, Pins, Package Handles, Specialty...
HyTech Spring And Machine	Plainwell, MI	Flat Springs, Retainers, Snap Rings, Clamps, Rings, Wire Forms & Any Type Of Helical Springs With Size .002" & Up. Certified...
Converters Inc.	Huntingdon Valley, PA	Specializing In Custom Slitting, Die Cutting & Laminating Of Pressure Sensitive Tapes
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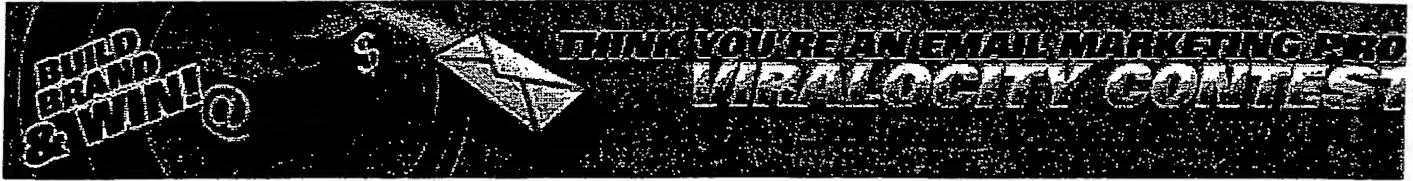
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<u>Precision Plastics</u>	Beltsville, MD	Hand Tools, Power / Welding Tools, Abrasives, Safety & Security, Building Hardware, Fasteners, Material Handling & Storage,...
<u>Advanced Fabricating Technology, Inc.</u>	Grand Rapids, MI	Mfr. Of Custom Plastic & Wood, Metal Products & Fabrications Including Vacuum Forming, Thermoforming, Covers, Domes, &...
<u>Enco Manufacturing Co.</u>	Farmingdale, NY	Die Cutting, Fabricating, Stamping, Laminating, Packaging & Screen Printing Of Plastics, Rubber, Adhesives, Foam & Fibre....
<u>Diamond Fasteners, Inc.</u>	Farmingdale, NY	Metalworking & Woodworking Tools, Machines & Supplies
<u>Able National Corp.</u>	Brooklyn, NY	Distribute Fasteners & Electronic Hardware. In Stock Military Specs. (AN-MS-NAS), Aerospace / Aircraft Fasteners, Standard /...
<u>Alliance</u>	Hot Springs, AR	Turnkey Contract Mfr. Of All Die Cut Products; Magnets, Filters, Gaskets, Washers, Advertising Specialties; Design, Printing
		Designer & Mfr. Of All Varieties Of Rubber Bands For All Applications Including Office, Home, Industry & Produce. Packaging,...

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Company Name	Location	Description
Greene Rubber Co., Inc.	Woburn, MA	Dist. & Fabricators Of Hook & Loop Materials. Strips Or Die Cut Parts To Specification. Dies Made On Premises
Leonard Industrial Supply	Westbury, NY	Complete Line: Hand Tools, Fasteners, 3M Abrasives, Adhesives, Chucks, Cutting Tools (Drills, End Mills, Reamers),...
Century Marketing Corp.	Bowling Green, OH	Plastic Hook, Tachers, Self Fastening. Hang Tags & Garment Bags Also Available
Deccofelt Corporation	Glendora, CA	Converters Of A Wide Range Of Materials Into Adhesive Coated Products. Complete Die-Cutting & Slitting Facilities
Reid Tool Supply Co.	Muskegon, MI	35,000 Items In Stock, No Minimum Order
Robbins Lightning, Inc.	Maryville, MO	Mfrs. Of A Complete Line Of Lightning Protection & Static Grounding Materials Which Comply With The Requirements Of Codes...
A+ Products, Inc	Brooklyn, NY	Stampings, Die Casted, Wire Forms, Split Keyrings, O & D Rings, Suspender, Luggage & Plastic Hardware, Zippers
Diversified Foam Products Inc.	Pennsauken, NJ	Custom Foam Fabrication, Precision Slitting, High Speed Die Cutting, Flame Lamination, Hot Wire & Kiss Cutting. Specializing...
Rapid Rivet & Fastener Corp.	Farmingdale, NY	Master Dist. Of All Types Of Rivets, AN, MS, Commercial. Solid Semi-Tubular Blind, Drive Rivets & Rivet Nuts
Hudson Fasteners, Inc.	Bay Shore, NY	Full Line Mfr., Dist. Fasteners: Screws, Nuts, Bolts, Washers, Hardware, Fastener Assortment Kits. All Grades, Materials &...
Fastening Products Inc.	Laguna Hills, CA	Mfr., Distributor, Importer, & Wholesaler Of Commercial Grade Fasteners For Sale To OEM's. Standard Items Available...
Wayne Bolt & Nut Co.	Detroit, MI	Fasteners; Bolts, Screws, Nuts, Pins, Dowels, Spacers, Fittings. Standards Or Specials From Blue Prints. Ferrous Or Non...
FFr / Fasteners For Retail	Cleveland, OH	Merchandising Systems & Accessories Including Sign Holders, Shelf Management Systems, Ceiling Display Products, Product...
Allied Manufacturers	Corona, CA	Supplier Of Machined Components & Products. Products To Every Industry; From Designers Of Skates To Builders Of Jumbo Jets
P & H Metal Products Corp.	Valencia, CA	Mfr. Of More Than 1500 Luggage / Custom Hardware; Buckles, Hooks, Snaps, Rivets, Rings, Slides, Tie-Downs
Cable Markers Co., Inc.	Lake Forest, CA	Identification Products, Wire Markers, Computer Printable Systems, Labels, Tags, Heat Shrink Sleeving, Serialization, Bar...

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Product/Service

<u>Ampex Metal Products Co.</u>	Cleveland, OH	All Materials & Industries. Four-Slide, Punch Press, Secondary Operations. CAD, SPC. Complete Tool & Die Facilities
<u>Brand Preference Development Co.</u>	St. Louis, MO	Hinges, Hardware, Locks, Latches & Foam Tape, Plastic & Metal Trim
<u>Astrup</u>	Cleveland, OH	Dists. Of Hardware For Awning, Tent & Marine Applications. Also Awning, Sign, Marine, Tarp & Tent Fabrics As Well As...
<u>Clip Strip Corp.</u>	Hackensack, NJ	Mfrs. Of Display Fixtures, Clip Strips, Holders For: Price Channels, Signs, Banners, Cards, Labels
<u>Advanced Cable Ties, Inc.</u>	Gardner, MA	Mfg. & Specializing In Nylon, Stainless Steel, & Hook & Loop Cable Ties, Cable Tie Accessories, Cable Clamps, Cable Wraps,...
<u>Premier Fasteners, Inc.</u>	Farmingdale, NY	Stocking Dist. Of Fasteners; Nuts, Bolts, Rivets, Screws, Washers, & Hardware For Commercial, Industrial & Aerospace Markets
<u>Associated Bag Co.</u>	Milwaukee, WI	Reusable Ties With / Without Buckle In Black. Self-Adhesive Velcro® Coins. Packaging & Shipping Supplies
<u>Allan Zipper Mfg. Corp.</u>	Brooklyn, NY	Nylon Molded & Metal Zippers, Hook & Loop Fasteners, Separators, Closures. Assembler / Distributor
<u>3M Co. / Corp. Mktg. & Public Affai.</u>	St. Paul, MN	Serving Several Markets Including: Automotive, Communication Arts, Construction & Maintenance, Consumer, Electronics /...

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Plitek, LLC	Des Plaines, IL	Specialists In Custom Die Cutting, Slitting, Laminating, Coating, Spooling, Plastic Extrusion & Fabrication Of Precision...	Select companies in state/province:
Moore, Howard J., Co., Inc.	Huntington Station, NY	Plastic & Insulating Parts & Material; Rubber Gaskets, Die Cutting, Stamping, Screw Machine Parts	Alabama Alaska Alberta
Secon Rubber & Plastics, Inc.	Red Bud, IL	3M Converter, Foam Tapes, Gaskets, Pressure Sensitive Adhesives, Diecutting, Laminating, Slitting, VHB Tapes, Converter &...	To select multiple states, p (Cmd on Macs)
New Brunswick Plating, Inc.	New Brunswick, NJ	Plating & Surface Finishing Of Complex Components In The Electronic, Medical & Electrical Industries. Plate On A Large...	
Crest Lock Co., Inc.	Brooklyn, NY	Mfr. / Designer Of Specialty Hardware For Transit & Instrument Cases & Trunks, Cabinets, Luggage. Standard & Custom Handles,...	Search Again
Wirewright Manufacturing	Camarillo, CA	All Types Of Commercial, Industrial, Military Buckles. Products Include D-Rings, Medical Buckles, Plastic Buckles, Snap...	Find products and se North American com industries.
Harper Aerospace	Corona, CA	Fasteners Found In Satellites , Nuclear Applications, Radar Equipment, Turbine Engines & High-Pressure Pumps	
Audion Automation, Ltd.	Addison, TX	Mfr. Of Flexible Packaging Systems & Packaging Machinery: Shrink Packaging, Bag Packaging & Skin Packaging. Products...	Product/Se rvic
Breeze Eastern	Union, NJ	Rescue Hoists, Cargo Winches & Hook / Tie-Down Systems For Helicopters, Other Aircraft & Ships	
Textol Systems, Inc.	Carlstadt, NJ	Distributor & Fabricator Of Hook & Loop Products	
Delafield Fluid Technologies	Duarte, CA	Supplier Industrial Hoses, Including Hose Accessories & Fittings	
Vicar International	Union, NJ	Mfrs. Of Snap Fasteners, One Way Fasteners, Baby Snaps, Curtain Fasteners, Tumbuckles, 100% Stainless Steel Snap Fasteners...	
Tape Specialists Of Georgia Inc.	Americus, GA	Supplier & Converter Of Pressure Sensitive Tapes, Foams, Diecuts / Extrusions & Packaging Materials. Representing The...	
Sutherland Felt Co.	Troy, MI	Mfr., Die Cutting, & Fabricating Felt, Cork, Rubber, Foam, Leather, Hi-Temp materials. Fast Turnaround, Short Runs Welcome	
Tapeler Tape Machine Corp.	Ashland, MA	Automatic Or Semi-Automatic High-Speed Tape Applicators For All Types Of Pressure Sensitive Tape With Or Without Liner,...	
Ribbon Webbing Corp.	Chicago, IL	Mfrs. Of Polypropylene, Nylon & Polyester Webbing, Also Hook & Loop, Gros Grain. Webbing For All Purposes, In All Colors &...	
Warren Bolt & Screw Div., Warren	Detroit, MI	Mfrs. Dowel & Taper Pins, Woodruff Keys, Acom &	

<u>Screw Works</u>		Weld Nuts, Weld Screws, Long Socket Caps, Specialty Screw
<u>Syst-A-Matic Tool & Design</u>	Meadville, PA	Mfrs. Of Taplicator- Tape Application System: Feeds, Cuts, & Applies Pressure Sensitive Tape; Scrap-Eliminating Process...
<u>Richco, Inc.</u>	Chicago, IL	Plastic Fasteners, Circuit Board Hardware, Wire Routing Products, Cable Ties, Clips & Clamps, Fiber Optic &...
<u>Integrity Fasteners, Inc.</u>	Orange, CA	Dist. Fasteners, AN-MS-NAS, BAC Hardware, Inserts, Nuts, Bolts, Screws, Washers, Fittings, Connectors. Metric & Standards,...
<u>Plasti-Clip Corporation</u>	Milford, NH	Price Channel Sign Holders, Clips, Accessories
<u>D.J. Associates, Inc.</u>	Fort Smith, AR	Miscellaneous Hardware, Webbing & Tapes, Small Quantity Specialists
<u>Barjan Manufacturing Ltd.</u>	Farmingdale, NY	Hook & Loop Fastening Systems For Drapery Systems, Secure Guard™ Systems
<u>American Trade Group, Inc., Left Hand Bolt & Nut Div.</u>	Detroit, MI	Large Inventory Of Finished Left-Hand Hex Head Caps, Socket Caps & Hex Nuts
<u>MULTI TRIM</u>	New York, NY	Mfrs. & Dist. Of Full Line Of Industrial Sewing & Trimming Supplies In Any Colors & Styles

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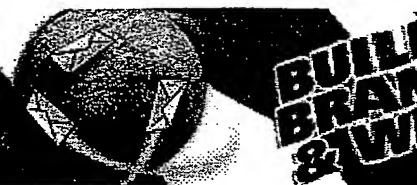
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<u>Manderscheid Equipment & Supply</u>	Chicago, IL	3M Hook & Loop Available	Select companies in state/province: <div>Alabama</div> <div>Alaska</div> <div>Alberta</div> To select multiple states, press (Cmd on Macs) <div></div>
<u>Jontay</u>	Waycross, GA	Dist. Of Webbing, Hardware, Buckles, & Notions. Plastic & Metal Buckles, Hook & Loop Elastic.	
<u>Pam Narrow Fabrics Corp.</u>	Freeport, NY	Hand Held Attaching Tool Systems To Replace Thread, Metals Staples & Pins For Fabric, Drapery & Upholstery Applications....	
<u>Suncor Stainless, Inc.</u>	Pembroke, MA		
<u>Andfel Corp.</u>	Bloomington, IN	Over 200 Million Fasteners In Stock, All Sizes / Materials, Hard-To-Find Items Military Specifications, MS-NAS-NASM,...	Search Again Find products and services in North American companies industries. <div>Product/Service</div> <div></div>
<u>Mil-Spec Fasteners Corp.</u>	Hampstead, MD	Mfr. Stainless Steel Narrow, Ferrule Eye & Flared Top Eye Straps. Also, Pulleys Sheaves, Rope Cleats, Stainless Steel...	
<u>Ronstan International Inc.</u>	Largo, FL	Latches-Spring Loaded: Surface Mounted Externally / Internally-Mortised, Sealable, Ganged & Remotely Operated	
<u>Norse, Inc.</u>	Torrington, CT	Complete Line Of Fasteners: Nuts, Bolts, Screws, Rivets, Retainers For Various Applications Covering Mil-Spec, Aerospace,...	
<u>Triforce Fasteners</u>	Upland, CA	Mfr. Of Threaded Rods Studs, Bolts, Nuts, Washers, Screws In Alloys & Stainless Steel	
<u>Missouri Threaded Rod, Inc.</u>	St. Louis, MO		
<u>Stewart Handling Systems</u>	Chino, CA		
<u>Quintana Industrial Supply, Inc.</u>	Lawrence, MA		
<u>U.S. Slide Fastener Corp.</u>	Boston, MA		
<u>Peters-De Laet, Inc.</u>	South San Francisco, CA		
<u>ATCO</u>	Houston, TX		
<u>Scovill Fasteners, Inc. (DOT, PCI)</u>	Clarkesville, GA	Fasteners	
<u>Komar / Stitchcraft</u>	Elk Grove Village, IL		
<u>Argent Automotive Systems</u>	Novi, MI		
<u>Bisco Int'l. Inc.</u>	Hillside, IL	Fasteners For Temporary & Permanent Jobs	
<u>Aplix, Inc.</u>	Charlotte, NC		
<u>Emar Separator Co., Inc.</u>	Long Island City, NY	Mfrs. Of Metal, Plastic, Nylon Zippers. Separators, Slide Fasteners Of All Sizes & Types	
<u>Lockfast, Inc.</u>	Cincinnati, OH		
<u>Lockfast-West</u>	North Las Vegas, NV		
<u>CustomFab Inc.</u>	Huntington Beach, CA		
<u>Royalox International, Inc.</u>	Phillipsburg, NJ		

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Versa-Flex Inc.	Cleveland, OH	Contract Sewing. Design, Prototypes, Large & Small Runs	Select companies in state/province:
Schwartz, Gerald, Inc.	Tucker, GA		<input type="checkbox"/> Alabama
RAK Foam	Cedar Knolls, NJ		<input type="checkbox"/> Alaska
Creative Packaging, Inc.	Tulsa, OK		<input type="checkbox"/> Alberta
Fare's Industrial Tools & Supply	Corona, CA		To select multiple states, press (Cmd on Macs)
Magic Tape Corp. DBA Inloc	Passaic, NJ		<input type="checkbox"/> Narrow Search
Mountainview Specialties Inc.	Perkasie, PA	Single & Double Coated Foam Tapes	
Vanguard Performance Plastics	Elkhart, IN		
GB Vision	Milwaukee, WI		
S.T. Robb Co.	Edina, MN	Dist. Of Nuts, Bolts, & Screws. All Sizes	Search Again
Ozland Enterprises, Inc.	Vicksburg, MI	Hook & Loop Straps & Fastening Systems: Variety Of Applications	Find products and services in North American countries:
YKK (U.S.A.) Inc.	Lyndhurst, NJ		<input type="text"/>
Popco Inc.	Minnetonka, MN	Brand Adhesive Backed Hook & Loop	<input type="text"/>
Mikron America, Inc.	Paterson, NJ	Grommets, Caps, All Button Fastening & Covering Applications	<input type="text"/>
Ooltewah Mfg., Inc.	Ooltewah, TN	Heat Sealing, Ultrasonic Sealing. Hook & Loop Cutting, Mating, Sewing & Bonding. Strapping, Hook & Loop, Patented...	<input type="text"/>
Cansew, Inc.	Montreal, QC		<input type="text"/>
Valley Enterprises, Inc.	Udly, MI		<input type="text"/>
Technifast Industries, Inc.	Carol Stream, IL	Custom Cold-Headed Products, Specialty Fasteners, Screws, Special Items	<input type="text"/>
Iver Display	Bangor, PA		<input type="text"/>
Progressive Plating Technology, Inc.	Bridgeport, CT	ISO 9002 Certified. Automated Barrel Electroplating Certifying To Specs	<input type="text"/>
Vers-A-Flect	Wilmot, NH	2", 1-1/2", 1", 5/8", Black & Navy Blue	<input type="text"/>
Automatic Plating	Bridgeport, CT		<input type="text"/>
King, John, Inc.	City of Commerce, CA		<input type="text"/>
Fastening Products Of Lancaster	Lancaster, PA	Mfr. Distributor Of A Variety Of Fasteners. Standard, Metric, Military, Aerospace. All Alloys. Large Inventory. On Premise...	<input type="text"/>
AccuMED Technologies, Inc.	Buffalo, NY		<input type="text"/>

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Great Industries Corp.	Ontario, CA	Mfr. Of Hook & Loop Tapes & Neoprene Sheet
Excel Thread & Sewing Supply	Passaic, NJ	Mfr. & Distributor Of Industrial Sewing Threads
Ideal Fastener Corp.	Oxford, NC	
Valley Products Co.	York New Salem, PA	Sew-In Labels, Narrow Fabrics, Cotton Or Synthetic Tapes
Atron Products & Services	Alpha, NJ	
Design / Craft Fabric Corp.	Niles, IL	
Hart Industries, Inc.	Owings Mills, MD	
Scovill Fasteners, Inc.	Clarksville, GA	
Grimes Industrial Products Group	Toronto, ON	
Baron Industries, Inc.	Pine Brook, NJ	
Consumer Care Products, Inc.	Plymouth, WI	Plastic & Fabric Tape
JRM Industries, Inc.	Passaic, NJ	
Kronke Co., Inc.	Hayward, CA	
Natvar Co., A Tekni-Plex Co.	Clayton, NC	Electrical Sleeving & Insulation, General Purpose & Specialized Plastic Tubing
Saunders Corp. Div., R.S. Hughes Inc.	Glendale, CA	
Ward & Kennedy Co.	Milwaukee, WI	
Merlin Industries	New York, NY	Hook / Loop Fasteners, Buttons, Zippers, Shoulder Pads For Apparel

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Company Name	Location	Description
Velcro USA Inc.	Manchester , NH	Hook & Loop Fastening Systems For Industrial Applications Where Separation & Rejoining Of Components Is Necessary, Or Where...
Perfectex Plus LLC	Huntington Beach , CA	Hook & Loop Fasteners. Sew-On Pressure-Sensitive Tapes. Heat & Solvent Activated Tapes. Fire-Retardant. Mil. Spec. Custom...
National Webbing Products Co.	Garden City Park , NY	Complete Line Of Thermoplastic & Metal Components For Handbags, Sportbags, Luggage, Straps, Apparel, Footwear, Belts, Auto,...
American Cord & Webbing Co., Inc.	Woonsocket , RI	Assorted Sizes & Materials
Levitt Industrial Textile Co.	Hicksville , NY	Dist. Of Velcro® Brand Hook & Loop Tape, Coins & VELCLOTH™ Brand Display Fabric. Special Colors, Widths, Lengths, Cut...
Speedtech International, Inc.	Chicago , IL	Mfr. & Dist. Of Hook & Loop Fasteners. Stocking VELCRO®, SPEEDWRAP® & Other Brands
WBC Industries, Inc.	Westfield , NJ	Hook & Loop Fasteners
TapeLer Tape Machine Corp.	Ashland , MA	Automatic Or Semi-Automatic High-Speed Tape Applicators For All Types Of Pressure Sensitive Tape With Or Without Liner,...
Bond Products Inc.	Philadelphia , PA	Suppliers Of Narrow Fabrics, Including Woven Tapes, Hook & Loop Tape & Dots, Drawcord Braids, Webbing, Elastics, Tying...
Middleburg Thread & Sewing Supply	Warminster , PA	Sew-On, Pressure Sensitive, Heat Activated, Solvent Activated, Polyester, Cut Pieces, Fabricated Straps & Assemblies
Toleeto Fasteners International	San Ysidro , CA	Reusable Hook & Loop Cable Ties, Wrist Bands & Custom Fabricated Straps For A Variety Of Applications. Ultrasonic Welding &...
Bardsco	St. Louis , MO	Reusable Hook & Loop Cable Ties, Wrist Bands & Custom Fabricated Straps For A Wide Variety Of Applications. Ultrasonic...
Touchtape, Inc.	St. Augustine , FL	Standard & PS Hook & Loop Tape & PS Dots Available. In-House Mfg. & Fabrication. Custom Orders
Lea & Sachs, Inc.	Des Plaines , IL	
FASTENation, Inc.	Passaic , NJ	Dist. & Fabricator Of Hook & Loop Fasteners, 3M Dual Lock
Precision Plastics	Beltsville, MD	Custom Mfr. Hook & Loop Fasteners, Made To Specs., In-House Design Assistance
Alliance	Hot Springs, AR	Designer & Mfr. Of All Varieties Of Rubber Bands For All Applications Including Office, Home, Industry & Produce. Packaging,...
Brunner Manufacturing, Inc.	Mauston, WI	Special Cold Headed & Formed Products For All OEM & After Market Needs. Special Bolts, Drilled

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<u>Robbins Lightning, Inc.</u>	Maryville, MO	Pins, Threaded Studs,... Mfrs. Of A Complete Line Of Lightning Protection & Static Grounding Materials Which Comply With The Requirements Of Codes...
<u>Blair Co.</u>	Elk Grove Village, IL	
<u>Cable Markers Co., Inc.</u>	Lake Forest, CA	Identification Products, Wire Markers, Computer Printable Systems, Labels, Tags, Heat Shrink Sleeving, Serialization, Bar...
<u>Advanced Cable Ties, Inc.</u>	Gardner, MA	Mfg. & Specializing In Nylon, Stainless Steel, & Hook & Loop Cable Ties, Cable Tie Accessories, Cable Clamps, Cable Wraps,...
<u>Allan Zipper Mfg. Corp.</u>	Brooklyn, NY	Custom & Stock 4-Gauge Vinyl Bags With Zipper, Snaps; For Drapes, Garments, Curtains, Comforters, Textiles
<u>Adhesives & Tapes Industrial Supply</u>	Vista, CA	Adhesives, Sealants, Coatings, Encapsulants, Tapes & Application Equipment. Casting Resin, Acrylic, Anaerobic,...
<u>Avery Dennison, Fastener Div.</u>	Framingham, MA	Cable Tie Products For Wire Harnessing, Packaging, Secure Holding & Bundling Functions

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Textol Systems, Inc.	Carlstadt, NJ	Distributor & Fabricator Of Hook & Loop Products
Ribbon Webbing Corp.	Chicago, IL	Mfrs. Of Polypropylene, Nylon & Polyester Webbing, Also Hook & Loop, Gros Grain. Webbing For All Purposes, In All Colors &...
MULTI TRIM	New York, NY	Mfrs. & Dist. Of Full Line Of Industrial Sewing & Trimming Supplies In Any Colors & Styles, Hook & Loop Fasteners, Zippers,...
Converters Inc.	Huntingdon Valley, PA	
Hope Global	Cumberland, RI	Loop Attachment Strip For Automotive & Industrial Seat Builds
Quintana Industrial Supply, Inc.	Lawrence, MA	
U.S. Slide Fastener Corp.	Boston, MA	
Peters-De Laet, Inc.	South San Francisco, CA	
ATCO	Houston, TX	
Industrial Tape & Supply Co.	Marietta, GA	
Bead Industries, Inc.	Bridgeport, CT	
Rip 'N Grip Industries, Inc.	Palmdale, CA	

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

TENNIS RACQUET EQUIPPED
WITH A TENNIS BALL RETRIEVER

Alice H. Howe

Filed: 09/06/00

) Art Unit: 3711

)

) Serial No.: 09/655,743

)

) Docket No.: MPH 99-46

)

AFFIDAVIT UNDER 37CFR1.132

STATE OF WISCONSIN)
)
COUNTY OF LA CROSSE)

1. ALICE HOWE, being duly sworn, deposes and states as follows that:

1. I was granted an R.N. degree by St. Frances School of Nursing. I was employed as a Registered Nurse at the La Crosse Clinic from 1958 to 1969; at the University of La Crosse Health Center from 1970 to 1980; and at St. Frances Hospital from 1980 to 1995. I have been an avid tennis player and fan for more than half a century, having played tennis on tennis courts throughout the U.S.A., Mexico and Europe.

2. I devised the testing procedures used to test the efficacy of hook and loop type fasteners as reported in the Example of the captioned patent application.

3. I am also the applicant of the invention described and claimed in the above application.

4. I have read and am familiar with the Office Action of Paper No. 3, the claims as currently to be amended in the response to Paper No. 3 by my attorney, the cited references of Paper No. 3, and the rejection of claims 1-7, 9, 10 and 12 as unpatentable over 35USC103(a) over U.S. Pat. No. 4,834,393 (*Feldt*) or French Patent No. 2594037 (*Musulin*), and either in view of U.S. Pat. No. 5,077,870 (*Melbye et al*) and alleged

applicant's admission of prior art in the specification; and the rejection of claims 8, 11 and 13-15 as unpatentable over *Feldi*, or *Musslin*, and in view of *Melbye* and applicant's admission of the prior art in his specification and in further view of U.S. Patent cited No. 4,993,712 (*Urwin*).

5. Pursuant to the request of my patent attorney, a mushroom-type strip fastener, representative of U.S. Patent No. 5,077,870 (*Melbye*), was tested under identical testing procedures as reported in the Example of the captioned patent application to determine its ability to engage and lift ordinary tennis balls from the ground. Representatives of the manufacture and patent assignee of the U.S. Patent No. 5,077,870 (*Melbye*) indicated that the loop mushroom-type strip fasteners (Dual-lock) used in this test was fairly representative of the mushroom-type fasteners of U.S. Patent No. 5,077,870. In the test, a one-foot length of the mushroom-type strip fastener was attached by its own adhesive backing to the outer edge of the shoulder of a Wilson tennis racquet. Pursuant to the test, three of the most commonly used tennis balls, namely Wilson Championship tennis ball, Dunlop Tournament tennis ball, and Penn Medalist tennis ball were tested. In each test, ten attempts were made to engage and lift each ball by firmly contacting the face of the "Dual-lock" fastener material to the felt or nap of the tennis ball.

6. In all thirty attempts of paragraph 5 above, to lift the three different types of tennis balls off the ground with the mushroom-type strip fastener of U.S. Patent No. 5,077,870 (*Melbye*), all attempts were completely unsuccessful upon all of the tested tennis balls. The "Dual-lock" mushroom-type fastener of U.S. Patent No. 5,077,870 (*Melbye*) failed to adhere, stick or attach onto any of the felt surfaces of any tennis ball in any of the aforementioned 30 test attempts.

7. It is therefore concluded that the tested mushroom-type strip fastener of U.S. Patent No. 5,077,870 (*Melbye*), when attached to the edge of an ordinary tennis racquet, is totally ineffective for retrieving ordinary tennis balls off the ground upon tangential contact as prescribed by my amended claims.

8. The physical and functional properties of the *Melbye* mushroom-type fastener do not permit it to engagingly attach or adhere to the felt surface of a common tennis ball as evidenced by the test results reported herein.

9. The mushroom-type fastener of U.S. Patent No. 5,077,870 to *Melbye* cannot engage and lift a grounded tennis ball upon tangential contact as defined by the amended claims of the captioned application.

10. It is factually incorrect to conclude that *Melbye* U.S. Patent No. 5,077,870 at column 1, lines 15-23 discloses Velcro™ and ScotchMate™ are functional equivalents as hook-and-loop fasteners or that equivalency may be extended to cover the uniquely different pre-shrunk nylon monofilament hooks of the highly specific and narrowly defined characteristics as defined by the currently amended claims.

11. The mushroom-type fastener of U.S. Patent No. 5,077,870 to *Melbye* fails to meet the claimed requirements of a series of pre-shrunk nylon monofilament hooks of:

- a) an average height of at least 1.85 mm
- b) an average diameter of at least 8.25 mil
- c) an average hook width of at least 1.0 mm; and
- d) an average hook depth of at least 0.6 mm

12. United States Patent No. 5,077,870 to the *Melbye* patent discloses and claims "a mushroom-type hook strip" having an "array of upstanding stems" and "a mushroom head at an end of the stem" as shown in Figure 1 of the *Melbye* patent which is clearly different in physical and functional characteristics from the claimed preshrunk monofilament hooks as illustrated in Figure 5 of the captioned application.

13. The mushroom headed stem of U.S. Patent No. 5,077,870 to *Melbye* patent is completely different in physical structure and function from the claimed hooked configuration and characteristics of the claimed preshrunk monofilament hooks.

14. The *Melbye* mushroom hook fasteners are neither the actual nor functional equivalent of the monofilament hooks as characterized and defined by the currently

pending claims in the captioned application as verified with the testing results reported herein.

15. For comparison purposes to the mushroom-type fastener of U.S. Patent No. 5,077,870, a monofilament as defined in claims 4-15 of the captioned application, when tested pursuant to Example 1, provided the unexpectedly superior efficacy upon tangential contact onto all three types of grounded tennis balls, as has been reported in the Example of the captioned patent applicant.

16. The above comparative test results represent a fair comparison between the claimed preshrunken monofilaments of the captioned application and the mushroom-type fasteners of U.S. Patent No. 5,077,870.

17. Further deponeth sayeth naught.

Alice H. Howe
Alice H. Howe
Affiant

10/18/01
Date

STATE OF WISCONSIN)
) ss.
COUNTY OF LA CROSSE)

Personally came before me this 18th day of October, 2001,
the above-named Alice H. Howe to me
known to be the person who signed as Affiant who executed
the foregoing instrument and acknowledged the same.

Nancy J. Lopez
Notary Public
State of Wisconsin

My commission expires: May 8, 2005

Per Alice Howe 4/9/2002

She spoke with Wilson Ball Co., Chicago, Illinois, who advised her as follows:

Tennis Ball Standard of Identity:

- 1. Round**
- 2. Diameter of no more than 6.5 cm and no less than 6.3 cm**
- 3. Made of rubber core with two halves glued together to make the sphere.**
- 4. Injected with air pressure (12 psi)**
- 5. Must be covered with felt; yellow or green**

(they also number the balls [1, 2, 3 or 4] for players' use and identity; and they stamp the Wilson brand name on the ball)

THE MAKING OF A TENNIS BALL

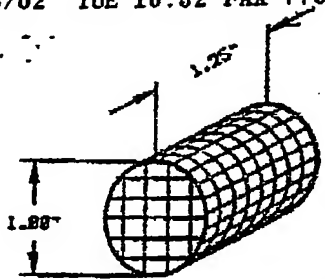
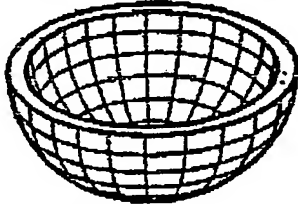
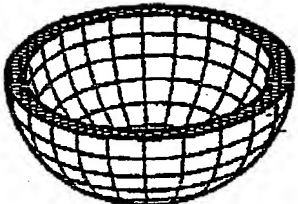
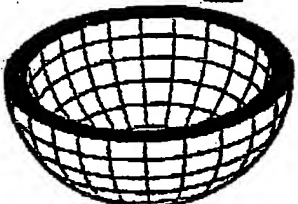
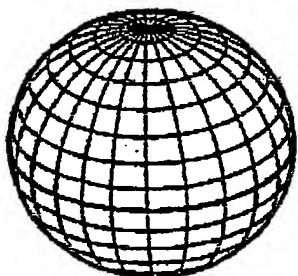
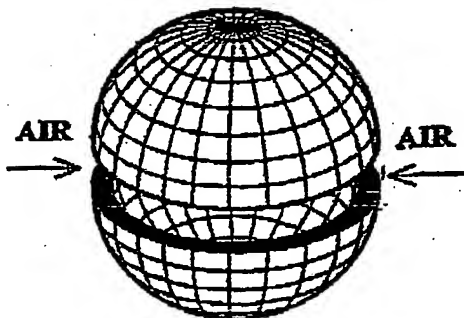
- Have you ever wondered how a tennis ball is made ?
 - Or, why there are so many different types of tennis balls ?
 - Have you ever wondered how a tennis ball got it's fuzzy, yellow cover ?
- All of these questions, and more, will be answered if you continue to read on.

FIRST A LITTLE HISTORY :

For many years, little effort was made to standardize the construction, and performance of tennis balls. But now, the International Tennis Federation (ITF) not only specifies the size, weight, and construction of the ball, but they also specify the hardness, and resiliency (or bounce characteristics) of the ball. The current ITF specifications are as follows:

	Size (inches)	Weight (grams)	Construction	Hardness (inches)	Resiliency (inches)
Maximum	2.700	58.5	Fabric cover with stitchless seams	.290	58.0
Minimum	2.575	56.7		.220	53.0

Historians believe that tennis originated from the Greek, and Roman Handball Game. The ball for this game consisted of a tightly compressed cloth, covered with a lighter layer of cloth, similar to today's tennis ball. Next, came balls with wool cores, and a hand stitched leather cover. These balls were more like soft baseballs. Occasionally, these balls were manufactured with a feather core. These balls did not possess much bounce, and were significantly heavier than today's ball. In 1873, the game "Sphairistike", or Lawn Tennis was invented, and played with a lightweight, uncovered rubber ball. In England, Mr. John Heathcote, who was a real champion of tennis as we know it, found the uncovered ball too light, especially during windy play conditions. In response to this, he and his wife developed the familiar pattern of two dogbone-shaped felt panels, which would completely envelope the rubber core. For these early samples, the felt cover panels were hand stitched onto the rubber core, similar to a baseball. In the late 1920's, special adhesives were developed for attaching the felt cover to the core, thereby eliminating the stitched cover. This ball is what we now think of as a tennis ball.

**RUBBER SLUG****HALF SHELL****HALF SHELL WITH
BUFFED SEAM****HALF SHELL WITH
SEAM ADHESIVE****BONDED CORE**

HOW A TENNIS BALL IS MADE :

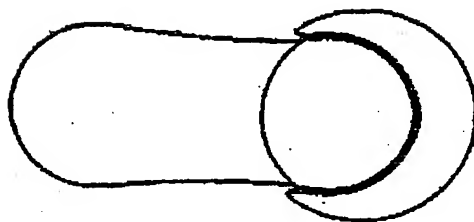
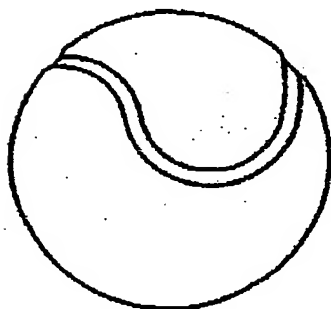
STEP #1 – Making the Pressurized Core : When Wilson Sporting Goods manufactures a tennis ball, they begin with the finest rubber, and premium quality ingredients available. These ingredients are first mixed with precision in a large rubber mixer, to produce a superior rubber compound. Next this compound is extruded, and cut into cylindrical - shaped slugs, measuring about 1" in diameter, and 1.25" long.

Each slug is then placed into a press, where it is molded, under heat, and pressure, to form a half shell, which will become one half of a finished core.

When the half shells are removed from the press, each hemisphere has a thin web of rubber around the entire perimeter of the half shell, which is called flash. This flash is removed in a precision stamping press, which trims away the unwanted flash. The seams of these trimmed half shells are then buffed, using a sandpaper buffing disc, and then coated with a special, high - strength seam adhesive.

An equal number of these half shells are then carefully placed into a special press, so that each pair of half shells have their buffed, and cemented seams, facing each other. Just before the press closes, a precise amount of air pressure (approx. 15 psi) is introduced into the small chamber between the mated half shells. Once the pressure stabilizes within the chamber, the press closes completely, thereby, trapping the air pressure within the core. This air pressure provides the tennis ball it's lively bounce characteristics. Under heat and pressure the two half shells are bonded, or vulcanized, together. We now have a pressurized tennis ball core.

These cores are then tumbled in a large, sandpaper - lined drum to roughen the surface of the core, in preparation for the application of core coating adhesive. These abraded cores are then dipped into a special core coating adhesive, and dried to the proper consistency, so that the adhesive becomes tacky, and ready to receive a felt cover. This adhesive will provide a strong bond between the core, and cover.

**FELT DOGBONE****BALL COVERING****FINISHED BALL****LOGOED BALL**

STEP #2 -- Preparing the Felt Dogbones : The other piece of the puzzle is the felt. Felt is a fabric composed of primarily high grade wool, and nylon. It arrives at the Wilson Factory in large rolls, at which time it is checked for thickness, weight, color, and wear properties before processing into dogbones.

The first step in preparing the felt is to apply adhesive to the backside of the felt. This is accomplished in a large machine which coats the entire roll of felt, in a continuous process. This machine also dries the felt sufficiently so that the felt may be re-rolled at the end of the machine. This adhesive will make sure the felt does not separate from the core during play.

Next, these adhesive coated rolls of felt are fed into a machine which cuts the felt into the familiar dogbone shaped panels. The dogbones are then stacked into clamping fixtures, and squeezed in compression, for the next operation. Two dogbones are required for each finished ball.

The packs of felt dogbones, held in the clamping fixture, are then dipped into a tank containing a very special adhesive, which coats only the edges of the felt dogbones. This adhesive will eventually become the familiar white, curvy seam of the tennis ball. After drying to the proper degree, the felt dogbones are then "picked" from the dipped packs, and placed into a ball covering machine, where they meet one of the adhesive coated rubber cores, from Step #1. The ball covering machine precisely places the two felt dogbones onto the rubber core.

This is not yet a finished tennis ball. The covered balls are then placed into a final molding press, where heat, and pressure bond the covers to the core, and also form the familiar white seam of the ball. When the balls leave this final molding process, the felt on the balls is in an extremely compressed state, from the heat and pressure of the press. The felt is fluffed back to it's original form in a large industrial dryer. Initially, steam is introduced into the fluffer to loosen up the felt fibers, and allow the fibers to spring back to their original position. Finally, the fluffer dries the balls using hot, circulating air, similar to a clothes dryer at home.



We now have a finished tennis ball. These balls are next inspected for conformance to Wilson's rigid quality standards, and if found acceptable, will be stamped with the familiar "Wilson" logo. Just before the application of the logo, each ball must pass a compression test, which assures that the ball has the proper air pressure.

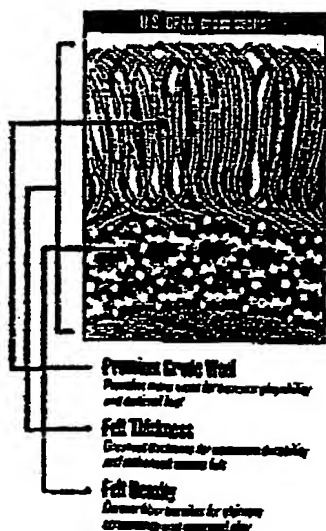
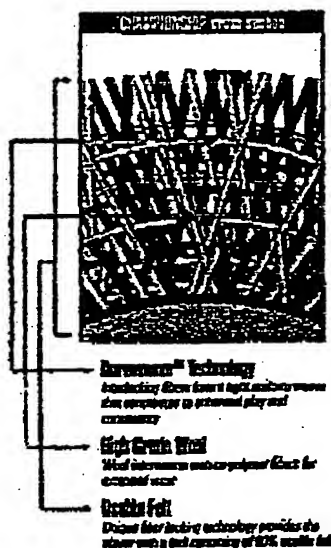
The finished balls are then placed into recyclable plastic cans, pressurized to the proper can pressure, and sealed with an aluminum, EZ Open lid. Each can is tested to insure that it is properly pressurized, and sealed. Lastly, a plastic overcap, and label are placed on the cans, and the cans are placed into cardboard boxes, ready for shipment to our customers.

TYPES OF TENNIS BALLS:

You may still be wondering why there are so many different types of tennis balls. There are two major categories of tennis balls — Pressurized, and Pressureless. The majority of tennis balls sold today are Pressurized Products. These products are packaged in a specially designed pressurized container, which keeps the balls fresh for years, until the can is opened, and the seal is broken. Pressurized tennis balls are more lively than Pressure-less balls, and feel lighter off the racket.

Pressureless tennis balls are manufactured with a thicker rubber wall, and with no internal ball pressure, which makes them play slower, and feel heavier off the racket. On the positive side, because there is no internal air pressure to lose, Pressureless tennis balls maintain their bounce characteristics better than pressurized balls, over the life of the ball.

Two other tennis ball products are the High Altitude Ball, and the Grass Court Ball. These two products are specially designed for specific playing conditions. The High Altitude Ball is made with a slightly lower air pressure than the Standard Wilson Ball, to compensate for the slightly lower barometric pressures found at altitudes above 3,500 feet. This change insures that the High Altitude Balls bounce correctly at higher altitudes. The Grass Court Ball features specially treated white felt that is ideal for grass court play.



F-6



PURE
NATURAL
RUBBER



PRECISION
ENGINEERED
FELT



SUPERIOR
WOVEN
FELT



OVER BLOWN
DAILY QUALITY
CHECKS



OFFICIAL BALL
OF THE U.S. OPEN



Tennis balls are also categorized by the type of felt used to produce the balls. The first type of felt, called woven, is typically made from a combination of wool, and nylon fibers, woven together in a large textile loom. The woven fabric is subjected to a large number of secondary operations, which remove the woven pattern, and provide the familiar "felt" look of a tennis ball. This type of felt is used on the Wilson U.S. Open Products.

Duraweave Felt was developed by Wilson, using a high grade wool that is uniquely interlocked with copolymer fibers to form a tight uniform weave. This construction provides a long lasting felt, which enhances the playing characteristics, and consistency of the ball. This type of felt is used on the Wilson Championship Products.

Each of the felts described above support two different levels of play - Extra Duty and Regular Duty. Extra Duty Felt is designed for play on abrasive surfaces where the fibers must withstand the shearing, and cutting action of abrasive courts. This felt does not normally fluff excessively, although high humidity, or hitting the ball with a great deal of spin may cause Extra Duty Felt to fluff more than normal.

Regular Duty Felt is designed for soft, smoother court surfaces, and indoor courts. The increased moisture of clay, or grass courts, and the high level of static electricity found in indoor courts will cause the felt to fluff more than normal. In addition, smooth court surfaces will pull, and tug at a felt (rather than the shearing, and cutting action associated with abrasive courts), causing more fluff on the felt. Therefore, it is crucial that Regular Duty Felt be designed to be highly resistant to fluffing.

So that is the story of why there are so many different types of tennis balls, and how they get their fuzzy covers. The yellow colored felt was introduced in the early '70's to improve the visibility for the players and the TV audience. From the finest raw materials, highest quality felts, and meticulous control of manufacturing processes, comes the "Wilson U.S. Open Ball... the Tennis Ball as Tough as the Tournament".

TENNIS BALLS FUN FACTS

Wilson is rated as the best playing ball in tennis by over four hundred top tennis players.

THE BEST PLAYERS PICK WILSON AS THE BEST BALL!

Wilson is the ball purchased most often by the best tennis players.

Wilson is the only ball used at all USTA National Championships.

Wilson is the only ball used by the WTA-The Women's Tennis Association

Wilson is the official ball of the US Open since 1979.

Wilson tennis balls are sold throughout the world including France, Germany, England, Japan, Singapore, Hong Kong and Latin American countries.

With the consistent quality, innovation and performance Wilson delivers, it has become the standard of play for an industry.

Wilson, the Number One ball

PUTTING IT ALL TOGETHER

Wilson Tennis Ball Manufacturing Fact Sheet

The first step in making a tennis ball is to prepare and mix together the ingredients that make the ball's core. The core of a tennis ball includes approximately 14 different materials. #1 is natural rubber. The tennis core stock undergoes extensive quality control testing throughout the blending process to ensure consistency.

This rubber is then made into thick sheets, milled, and then a machine punches out "slugs" which are cylindrical shaped chunks of rubber that are all the same size and shape. This "slug" is then molded into a perfectly shaped hemisphere under controlled curing conditions of time, temperature and pressure (referred to as first cure). These curing conditions are continuously monitored in order for the half shell to meet our specific requirements.

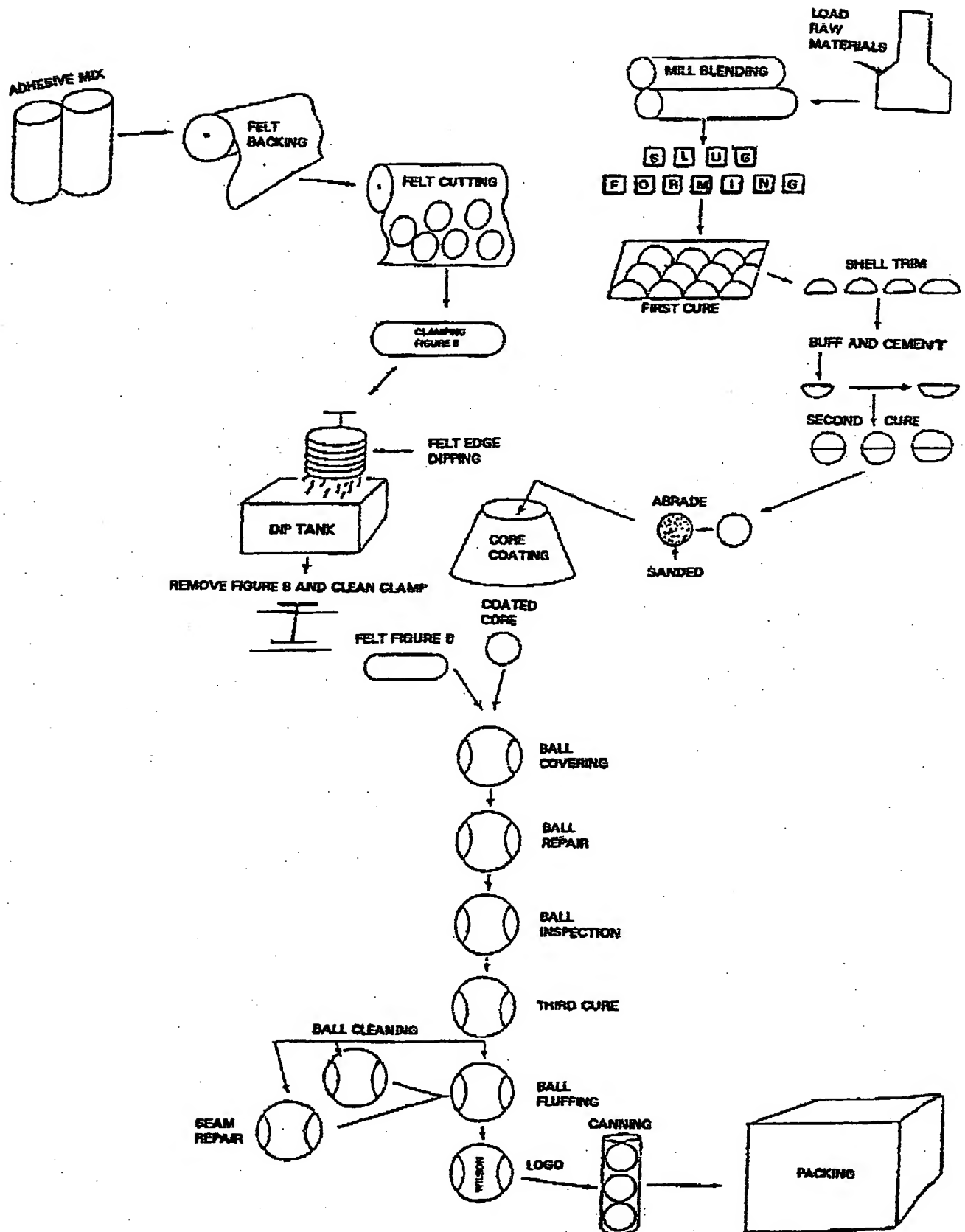
Each half shell is then buffed to even true the edges and prepare them for the adhesive that is used to bond the two halves together. The half shells are loaded into the top and bottom of a machine that looks like a waffle iron or an egg carton and they are cured here under controlled time, temperature and pressure. The inner chamber is pressurized so that the air trapped inside as the halves are fused together is at the same pressure (referred to as second cure). The adhesive on the half shell edges fuses the two half shells together for a tight seal. The pressure of each of our second cure presses are constantly monitored to ensure consistency of the core.

QC will then sample cores to test them for weight, size, rebound and deflection. The surface of the cores will then be abraded (roughened) in preparation for adhesion of the felt strips. The core is then dipped in a high quality adhesive compound and oven dried in preparation for the cover application.

A mix of specifically designed fibers are processed together to form rolls of felt material. These rolls are then "back coated" with a specially designed adhesive. Several rolls of back coated felt are fed into an automated high-speed cutting machine which punches out the figure 8 shaped pieces of felt and packs them together into a bundle. The felt packs are then dipped into a vat of white seam adhesive which coats only the edges of the felt. The felt packs are dried and the figure eights are then separated. The back coated figure eights are now inserted into the felt covering machine and placed on the core. At this point, the product starts to resemble a tennis ball. The final cure insures a perfect bond between the ball and cover. Under conditions of time, temperature and pressure, the felt is bonded to the core and the seam adhesive is cured (referred to as third cure). Extensive quality control checks are conducted throughout this entire process to assure a high quality finished product.

After third cure, the balls are steam fluffed to raise the nap on the felt, giving the balls their fuzzy appearance. After the fluffing process, the balls are visually inspected for cosmetic quality. Next comes the stamping of the company logo and number. The logo operation is also systematically controlled in order to maintain the proper positioning. QC will then sample finished balls and test them to assure that they meet USTA and player specifications. Three balls are sealed in air tight pressurized cans. The pressurized can keeps the ball pressurized for excellent bounce and playability.

FLOW CHART



USTA TENNIS BALL SPECIFICATIONS

APPENDIX

RULE 3

BALL - SIZE, WEIGHT AND BOUND

¹ The ball shall have a uniform outer surface and shall be white or yellow in color. If there are any seams they shall be stitchless. The ball shall be more than two and a half inches (6.35 cm) and less than two and five-eighths inches (6.67 cm) in diameter, and more than two ounces (56.7 grams) and less than two and one-sixteenth ounces (58.5 grams) in weight. The ball shall have a bound of more than 53 inches (135 cm) and less than 58 inches (147 cm) when dropped 100 inches (254 cm) upon a concrete base. The ball shall have a forward deformation of more than .220 of an inch (.56 cm) and less than .290 of an inch (.74 cm) and a return deformation of more than .350 of an inch (.89 cm) and less than .425 of an inch (1.08 cm) at 18 lb. (8.165 kg) load. The two deformation figures shall be the averages of three individual readings along three axes of the ball and two individual readings shall differ by more than .030 of an inch (.08 cm) in each case. All tests for bound, size and deformation shall be made in accordance with the regulations in the Appendix hereto.

¹ The Official USTA Yearbook and Tennis Guide With The Official Rules, H.O. Zimmerman, Inc., 156 Board St., Lynn, MA, 01901, 1977, pp. 415.

TENNIS BALLS

DIFFERENCES BETWEEN PRESSURIZED & PRESSURLESS TENNIS BALLS

1. Pressurized balls have traditionally been the ball of choice in this country. This preference for pressurized is based on the following:
 - They are typically more lively than pressureless and feel lighter off the racquet.
 - Pressurized balls typically sound a little crisper when hit.
 - Pressurized balls (in this country) are very inexpensive. In 1930, a can of 3 Wilson tennis balls could be purchased for \$1.50 in a Sears & Roebuck catalogue. Over sixty (60) years later, that same can of balls may be purchased for under \$2.00. With this low price, a large majority of players open a new can of tennis balls at every outing.
2. Pressurized balls are packaged in specially designed pressurized containers which are capable of keeping the balls fresh for years in storage. However, once the seal of the can is broken and the pressure is released, the balls will begin to lose air and, therefore, liveliness. The rate at which this occurs is a function of the following:

TEMPERATURE: The higher the temperature, the faster the balls will lose air (liveliness). For example, at room temperature a ball would typically lose approximately 2 psi of air pressure in a 2-month time period. This would result in a 2 inch loss of rebound height (liveliness) which a good player could potentially notice.

At elevated temperatures, such as 100° F, this loss of air pressure would occur much faster - probably 2 weeks instead of 2 months. For this reason, it is not a good idea to store opened tennis balls in the trunk of your car during the hot summer months. We recommend storing the balls at a cool temperature, even a refrigerator, if you have the room.

USAGE: Although we don't have any hard data to substantiate this claim, we do believe balls lose air much faster when they are used in play. The impact with the racket and court during play heat up the balls, resulting in a higher internal pressure and, consequently, a higher permeation rate.

3. In sharp contrast to the above, pressureless tennis balls have no internal pressure inside the core. Therefore, they will not lose liveliness over time. This provides more consistent performance over time. The most frequent complaint about pressureless balls is that they are slow playing and feel heavy on the racket. The Wilson "advantage" tennis ball is specially formulated to eliminate this heavy feeling on the racquet. Additionally, its slightly slower playing characteristics make it ideal as a practice ball since it provides a little extra time to prepare for shots. Pressureless balls are ideal for ball baskets since they don't lose air pressure (liveliness) over time. In areas of the world where tennis balls cost 2-3 times more than in the US, pressureless balls enjoy a significant market share. They represent an excellent value to the cost conscious consumer.

EFFECTS OF TEMPERATURE ON THE REBOUND HEIGHT OF A TENNIS BALL

ITEMS TESTED

6-Wilson T1001 Championship Extra Duty tennis balls

TEST PROCEDURE

1. Balls were kept overnight at room temperature and measured for 100" rebound height the next day.
2. Balls were placed in a refrigerator overnight at a temperature of 38°F. The next morning, one ball at a time was removed from the refrigerator and measured for rebound height as quickly as possible.
3. Balls were placed in an oven at 100°F for 6 hours. It is important to note that the balls were placed inside a small cardboard box to prevent the hot oven air blast from impinging directly on the balls. After 6 hours, one ball at a time was removed from the oven and measured for rebound height as quickly as possible.
4. Step #3 was repeated at an oven temperature of 130°F.

TEST RESULTS

The results on the 6 tennis balls tested were averaged and plotted as a function of temperature. The results may be found in Graph 1 attached.

DISCUSSION OF RESULTS

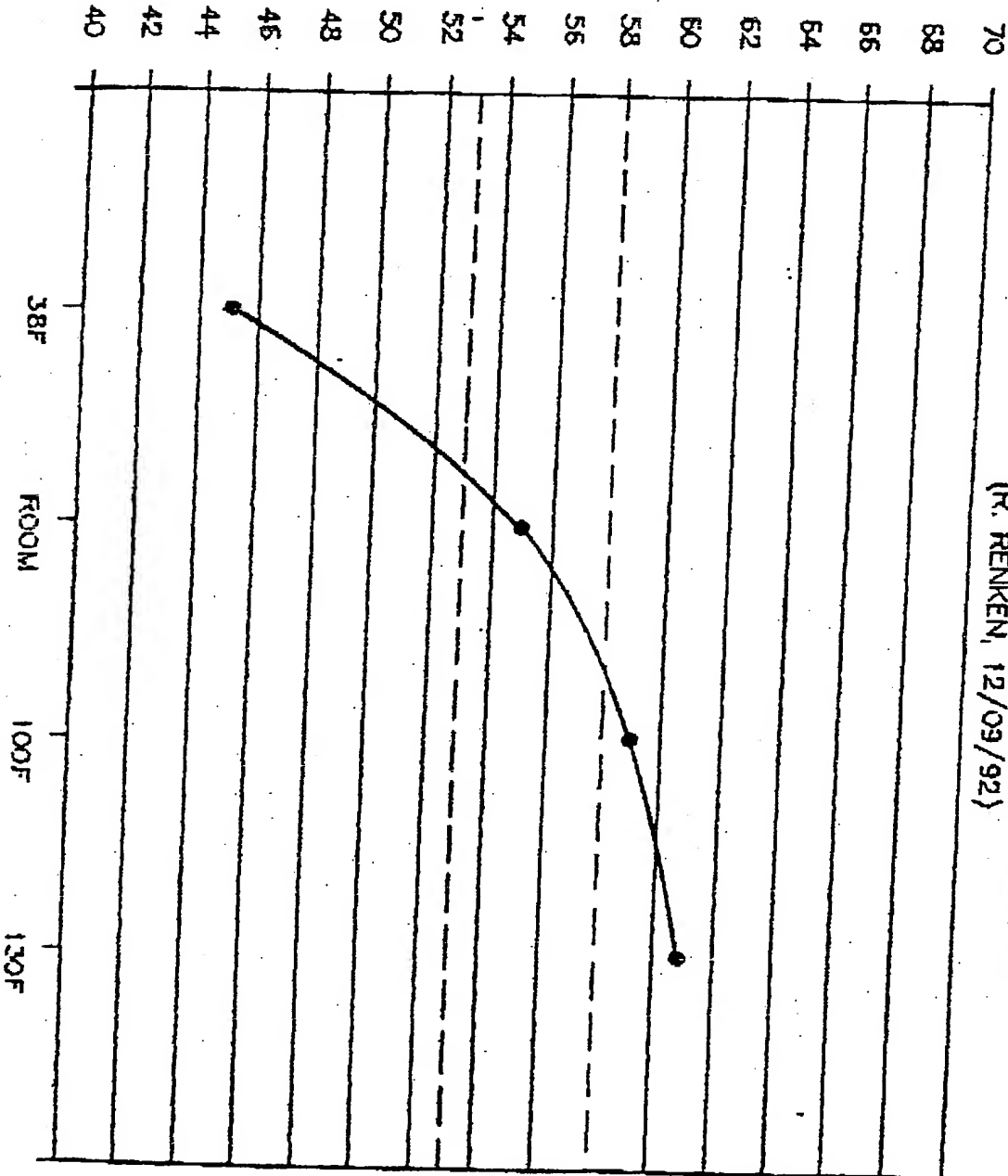
1. Temperature was found to have a strong influence on rebound height.
2. Rebound height was most effected at the lower temperature of 38°F. On average, the balls lost 10 inches of rebound in going from 72°F to 38°F. It is important to note that if the balls at low temperatures were used in play, they would quickly increase in rebound height because of the warming of the balls due to flexing of the core.
3. The balls quickly fell out of the rebound specifications of 53" - 58" when exposed to the 3 test temperatures.

REBOUND FROM 100" DROP, Inches

GRAPH 1

REBOUND HT VS TEMPERATURE

(R. RENKEN, 12/09/92)

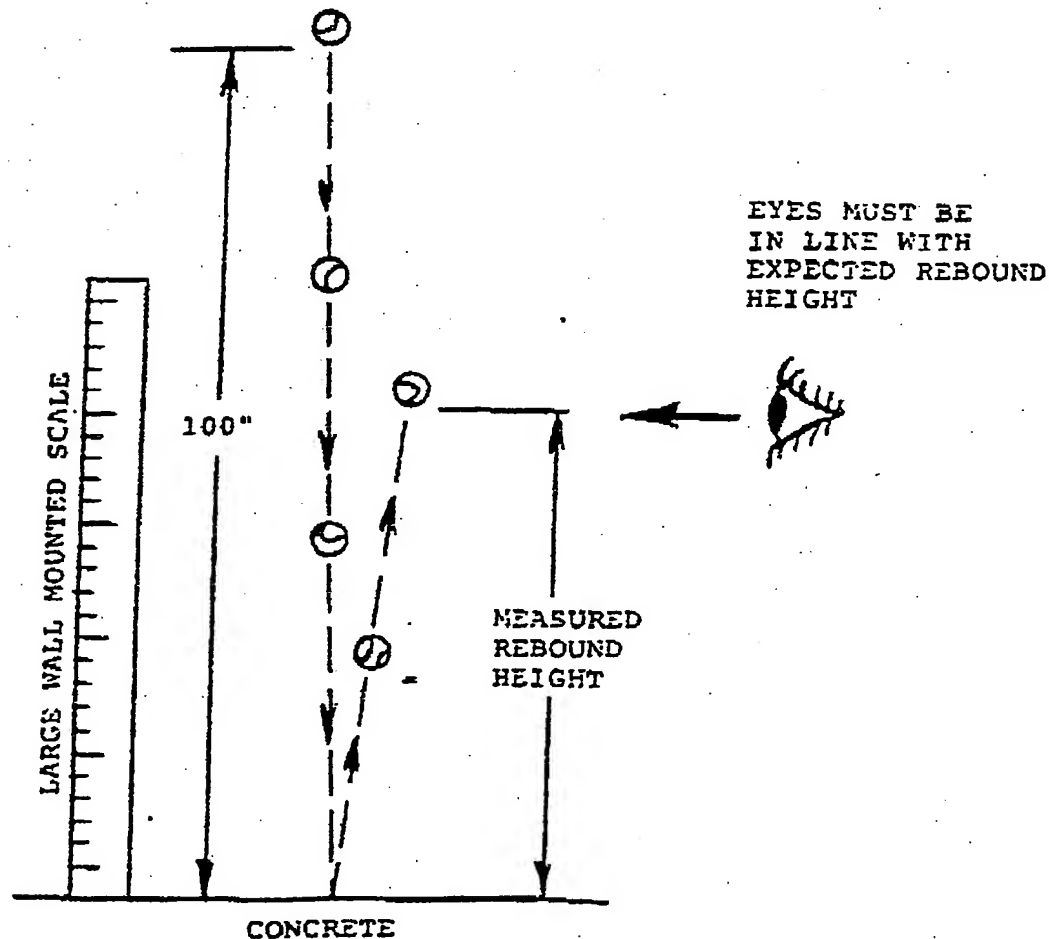


REBOUND
SPEC.
53" - 58"
AT ROOM TEMP

TEMPERATURE, Degrees F

100" REBOUND HEIGHT TEST

1. Balls were dropped from 100" (as measured from the bottom of the ball) onto a solid base, preferably concrete or granite.
2. Rebound height is measured to the bottom of the ball using a large graduated scale mounted behind the ball.
3. Care must be taken to assure that the eyes of the tester are in line with the approximate rebound height of the ball.
4. Three readings must be taken for each ball, and the average of the three is recorded as the rebound height.



PERMEABILITY OF TENNIS BALL CORES

The can is pressurized (not vacuum) with approximately 12 LB/IN² pressure to maintain the pressure in the ball. Once the can is "popped", and pressure is released, the balls will lose air pressure at a slow rate, similar to a car tire losing air. Below is a test report showing the change in "Rebound Height" and "Deformation" as a function of time (or days out of the can). As you will notice, the balls lose rebound height (bounce) and become softer. The air pressure leaks through the microscopic pores in the wall of the rubber core.

PERMEABILITY TEST OF TENNIS BALL CORES

ITEMS TESTED:

Twelve (12) Wilson Extra Duty tennis balls made with the following compounds:

>

>

>

Confidential

TEST PROCEDURE

Each group of balls were tested initially right out of the can for rebound and deformation. The balls were then placed in the lab conditioner at the standard test conditions of 68°F and 60% Relative Humidity. The balls were then re-tested every two (2) days for three (3) weeks. After 27 days, the balls were re-tested every seven (7) days. After 41 days the balls were re-tested every thirty (30) days. The balls were out of the can for a total of 196 days when the test was discontinued.

TEST RESULTS & CONCLUSIONS

The following table lists the rebound and deformation mean and standard deviation for the various compounds over a number of days out of the can:

This data has been plotted and curve fitted by computer using linear regression formula. The coefficient of determination (R^2) and the individual predication equations are given in the following table:

REBOUND		DEFORMATION	
R^2	$\hat{Y} = A + Bx$	R^2	$\hat{Y} = A + Bx$
0.948	$Y = 55.81 \pm 0.034x$	0.984	$Y = 0.2731 + 0.00031x$
0.975	$Y = 55.31 \pm 0.032x$	0.979	$Y = 0.2371 + 0.00028x$
0.969	$Y = 55.06 \pm 0.036x$	0.984	$Y = 0.2320 + 0.00028x$
0.972	$Y = 56.36 \pm 0.038x$	0.974	$Y = 0.2393 + 0.00026x$

What happens to the rebound of tennis balls once they are removed from the pressurized can?

- > The rebound of all tennis balls decreases over time once they are removed from the can; this is due to pressure loss. The rebound loss, however, is only 0.032" to 0.038" a day.

- Based on a 5" difference between the 58" upper spec and 53" lower spec for rebound, it would take approximately 131 to 156 days for these balls to lose 5" in rebound at 68°F and 60% Relative Humidity.
- The rate of rebound loss at 68°F and 60% Relative Humidity varies from compound to compound. Based on the slopes of these lines, the compounds can be ranked in order of least amount of loss in rebound:

- Least 1.
2. *Confidential*
3.
Most 4.

What happens to the deformation of tennis balls once they are removed from the pressurized can?

- All tennis balls soften over time once they are removed from the can; this is due to pressure loss. The amount of softening, however, is only 0.00026" to 0.00031" a day.
- Based on a 0.060" range for the deformation specifications of 0.220" to 0.280", it would take 194 to 231 days for these balls to soften 0.060" at 68°F and 60% Relative Humidity.
- Based on the slope of the linear regression lines, the compounds may be ranked in order of least amount of softening at 68°F and 60% Relative Humidity:

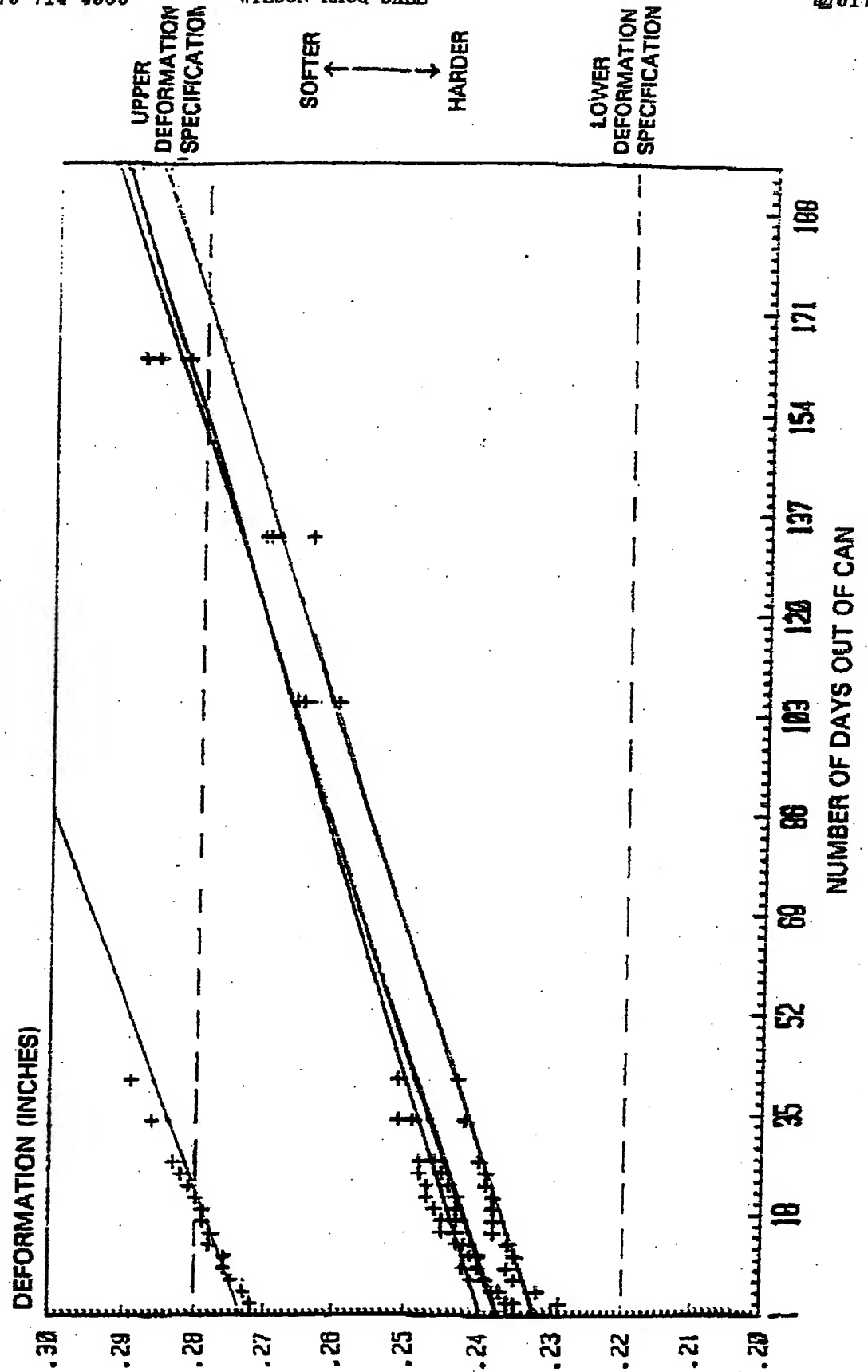
- Least 1.
2. *Confidential*
3.
Most 4.

SUMMARY

It is important to note the initial rebound and deformation of each compound. Compounds that have a rebound near the upper limit (58.0") will remain "in spec" longer than balls that are near the median (55.5") or the lower limit (53.0"). The same discussion applies to deformation; balls that are near the "hard" side of the specification (0.220") will remain "in spec" longer than balls that are nearer the specification median (0.250").

This test does not accurately measure the life of tennis balls because, in reality, balls are taken out of the can, played and then allowed to sit in non-pressurized cans at various temperatures. The actual play time and amount of hitting will accelerate the changes in rebound and deformation. At best, this test can be used to determine how long a tennis ball is playable once the can has lost its pressure.

LEAKAGE TEST - 68°F (LINEAR REGRESSION)



WEBSTER'S NEW UNIVERSAL UNABRIDGED DICTIONARY

DELUXE
SECOND EDITION

BASED UPON THE BROAD FOUNDATIONS LAID DOWN BY

Noah Webster

EXTENSIVELY REVISED BY THE PUBLISHER'S EDITORIAL STAFF UNDER THE GENERAL SUPERVISION OF

JEAN L. McKECHNIE

INCLUDING ETYMOLOGIES, FULL PRONUNCIATIONS, SYNONYMS, AND AN ENCYCLOPEDIA SUPPLEMENT OF
GEOGRAPHICAL AND BIOGRAPHICAL DATA, SCRIPTURE PROPER NAMES, FOREIGN WORDS AND PHRASES,
PRACTICAL BUSINESS MATHEMATICS, ABBREVIATIONS, TABLES OF WEIGHTS AND MEASURES, SIGNS AND
SYMBOLS, AND FORMS OF ADDRESS

ILLUSTRATED THROUGHOUT

Dorset & Baber

xii

xiii

29

128

131

132

135

136

41

45

50

52

57

ts

felicitate

made very happy. [Obs.]
 felicitated, *pt.*, *pp.*; felicitat-
 felicitatus, *pp.* of felicitare, to
 from felix (-icis), happy.]
 happy. [Rare.]
 felicitate; to wish joy or pleasure
 felicitate our friends on good for-

a congratulation.
 1. suitable to the occasion;
 apt and to the point; as, a

the knack of appropriate and
 -ion, style, etc.
 felicity, as, a felicitous occa-

timely, apropos, successful
 -ous.
 -adv. in a felicitous manner;
 -ly.

2. the state or condition of
 felicity, as, a felicitous occa-

felicitous, [ME. felicitus;
 from L. felicitas, happiness, from
 felix, happy.]

perfect content and comfort;
 after this life to attain ever-

and felicity.—Common Prayer.
 which produces happiness or
 source of satisfaction; as, the

eternal life.
 felicity can genius attain than
 purified intellectual pleas-

—Johnson.
 appropriate and pleasing ex-
 -pression, speaking, painting, etc.

—Johnson.
 felicitous, [ME. felicitus;
 from L. felicitas, happiness, from

felix, happy.]
 felicitous, [ME. felicitus;
 from L. felicitas, happiness, from

felix, happy.]
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 from L. felicitas, happiness, from

felix, happy.]
 felicitous, [ME. felicitus;
 from L. felicitas, happiness, from

felt

fellowship, specifically to Christian fellow-
 ship; to unite with in doctrine and discipline.
 fel'low-ship, *v.i.* to become associated with
 others, especially in the same church.

fel'low trav'el-er, a nonmember who supports
 or approves the cause of a party, especially
 the Communist Party.

fel'ty, *adv.* [ME. *felly*, *felli*, *fellich*, fiercely,
 cruelly.] in a fell manner; cruelly; fiercely;
 barbarously.

fel'ty, fel'toe, *n.*; *pl.* fel'ties, fel'toes, [ME.
feli, *felwe*, *felow*; AS. *felz*, *felze*, a felly, fellow,
 from AS. *folan*, *feolan*, to stick, from the

pieces of the rim being put together.]
 1. any of the curved pieces of wood which,
 joined together by dowel pins, form the cir-
 cumference or circular rim of a wheel into
 which the spokes are fitted.

2. the rim of a wheel.
 fel'to-de-ee' (or fel'to-), *n.*; *pl.* fel'to-de-ees',
 fel'to-mee-de-ees', [Anglo-L., lit. felon of
 (one)self.] in law, suicide or a suicide.

fel'toid, *a.* [L. *felis*, *felis*, a cat, and Gr. *oidos*,
 form.] of or pertaining to the *Felidae*; having
 the characteristics of the cat family.

fel'on, *a.* 1. malignant; fierce; malicious; pro-
 ceeding from a depraved heart; traitorous;
 disloyal.
 Vain shows of love to veil his felon hate.
 —Pope.

2. wicked; base; criminal.
 fel'on, *n.* [ME. *feloun*, *felon*, from *feloun*,
 wicked, malignant.] a painful, pus-producing
 infection at the end of a toe or finger, usually
 occurring near the nail; a deep-seated whit-

low.
 fel'on, *n.* [ME. *feloun*, *feloun*; OPr. *felon*, *felon*,
 a wicked person, traitor, from LL. *felio*, *felo*, a
 traitor, rebel.]

1. in law, a person who has committed a
 felony; a criminal.
 2. a villain. [Rare.]

fel'on-ess, *n.* a woman guilty of a felony.
 fel'lo-ni-ous, *a.* 1. wicked; base; criminal.
 2. in law, of, like, or constituting a felony;
 as, felonious homicide.

fel'lo-ni-ous-ly, *adv.* in a felonious manner;
 with the deliberate intention of committing a
 crime.

fel'lo-ni-ous-ness, *n.* the quality of being felo-
 nious.

fel'on-ly, *adv.* feloniously. [Obs.]
 fel'o-nous, *a.* wicked; felonious. [Obs.]
 fel'on-ous-ly, *adv.* feloniously. [Obs.]

fel'on-ry, *n.* a number of felons, considered
 collectively; a body of convicts, as in a prison
 or penal colony.

fel'on-wort, fel'on-wood, *n.* bittersweet.
 fel'on-y, *n.*; *pl.* fel'on-ies, [ME. *felony*, *felonie*;
 LL. *felonia*, treason, treachery, from *felo*

(-onis), a traitor, wicked fellow.]
 1. an act of wickedness or treachery. [Obs.]
 2. in law, (a) under the feudal system, an
 offense committed by a vassal, the penalty
 for which was forfeiture of fief; (b) at com-

mon law, one of a limited number of crimes
 the punishment for which is the forfeiture of
 land or goods or both (cases of particular
 heinousness sometimes occasioning additional
 penalty, even death); (c) in modern usage, a
 major crime, as murder, arson, rape, etc., for
 which statute provides a greater punishment
 than for a misdemeanor.

In many [states] of the United States, *felony*
 is defined by statute as including all
 crimes which are punishable by death or
 imprisonment in the state prison.

Many crimes which were not *felonies* at
 common law are made so by statute, being
 either expressly declared to be so, or such
 a penalty being attached to them as to
 bring them within the meaning of the
 term.

fel'site, *n.* [from *felspar*, and *-ite*,] an igneous
 rock consisting mainly of feldspar and quartz;
 also called *felstone*.

fel'sit'ic, *a.* pertaining to or resembling felsite;
 containing or composed of felsite.

fel'spär, fel'spath, *n.* same as *feldspar*.
 fel'spär'ic, *a.* same as *feldspathic*.

fel'stone, *n.* same as *felsite*.
 felt, *v.* past tense and past participle of *feel*.
 felt, *n.* [ME. *felt*; AS. *felt*; D. *vilt*; G. *filz*, *felt*.]

1. a cloth or fabric made of wool, or of wool
 and fur or hair, the fibers of which are not
 woven together, but matted or wrought into
 a compact substance by rolling and pressure,
 usually with the aid of chemical action, heat,
 etc.

2. a cloth or fabric made of wool, or of wool
 and fur or hair, the fibers of which are not
 woven together, but matted or wrought into
 a compact substance by rolling and pressure,
 usually with the aid of chemical action, heat,
 etc.

3. a cloth or fabric made of wool, or of wool
 and fur or hair, the fibers of which are not
 woven together, but matted or wrought into
 a compact substance by rolling and pressure,
 usually with the aid of chemical action, heat,
 etc.

4. a cloth or fabric made of wool, or of wool
 and fur or hair, the fibers of which are not
 woven together, but matted or wrought into
 a compact substance by rolling and pressure,
 usually with the aid of chemical action, heat,
 etc.

5. a cloth or fabric made of wool, or of wool
 and fur or hair, the fibers of which are not
 woven together, but matted or wrought into
 a compact substance by rolling and pressure,
 usually with the aid of chemical action, heat,
 etc.

6. a cloth or fabric made of wool, or of wool
 and fur or hair, the fibers of which are not
 woven together, but matted or wrought into
 a compact substance by rolling and pressure,
 usually with the aid of chemical action, heat,
 etc.

from *falaha*, to cleave the soil, plow.] a peas-
 ant or laborer in Egypt or some other coun-
 tries where Arabic is spoken.

fel'la'ti-ō, *n.* [Mod.L., from L. *fellatus*, *pp.* of
fellare, to suck.] a sexual activity involving
 oral contact with the male genitals.

fel'er, *n.* a fellow; a man or boy. [Slang or
 Dial.]

fel'er, *n.* 1. one who hews or knocks down; a
 device for cutting down trees.
 2. a sewing-machine attachment for felling
 seams.

fel'fare, *n.* see *fieldfare*.
 fel'mōn-ger, *n.* a dealer in fells or hides.
 fel'mess, *n.* cruelty; fierce barbarity; rage;
 absolute ruthlessness.

fel'toe, *n.* same as *felly*.
 fel'low, *n.* [ME. *felow*, *felaghe*, a companion,
 partner, from Ice. *felagi*, a partnership, fel-
 lowship; *fe*, property, and *lag*, a laying to-
 gether, fellowship, from *leggja*, to lay.]

1. originally, a person who shares; partner
 or accomplice; hence, a companion; an asso-
 ciate; a comrade; a mate.
 In youth I had twelve fellows like myself.
 —Ascham.

2. an equal; a person of the same class or
 rank; peer.

3. either of a pair of similar things used to-
 gether and suited to each other.

4. (a) a man or boy; often in familiar ad-
 dress; (b) a person; one; as, a fellow must eat.
 [Colloq.]

A fellow of infinite jest, of most excellent
 fancy.
 5. (a) a person of a lower social class; (b) a
 coarse, rough man. [Obs.]

Worth makes the man, the want of it the
 fellow.
 6. a suitor; beau. [Colloq.]

7. a graduate student who holds a fellow-
 ship in a university or college.

8. a member of a learned society.
 9. a member of a governing body of a col-
 lege, as at Oxford University. [Brit.]

fel'low, *a.* having the same ideas, position,
 work, etc.; in the same condition; associated;
 as, fellow workers, fellow students.

fel'low, *v.i.*; followed, *pt.*, *pp.*; following, *ppr.*
 1. to suit with; to pair with; to match.
 2. to associate with; to accompany. [Obs.]

fel'low com'mōn-er, 1. one who has the
 same right of common.
 2. in Cambridge, Oxford, and Dublin, an
 undergraduate who commons or dines with
 the fellows.

fel'low-craft, *n.* the second degree in Free-
 masonry; also, one who has taken this degree.
 fel'low-fee', *v.i.* to have a like feeling, as sor-
 row or joy, with; to feel sympathy with.
 [Rare.]

fel'low feel'er, one who shares another's feel-
 ings; one who feels sympathy for another.
 [Rare.]

fel'low feel'ing, a feeling of fellowship or joint
 interest; sympathy.

fel'low-less, *a.* having no equal or associate;
 peerless; unmatched.

fel'low-like, *a.* like an associate or comrade;
 companionable; on equal terms. [Obs.]

fel'low-ly, *a.* fellowlike; sympathetic. [Rare.]
 fel'low serv'ant, each of two or more persons
 who perform similar tasks for the same em-
 ployer; an employer cannot ordinarily be held
 liable for injuries suffered by one servant
 through the negligence of another.

fel'low-ship, *n.* 1. the condition of being an
 associate; mutual association of persons on
 equal and friendly terms; communion; com-
 panionship; familiar intercourse; intimate fa-
 miliarity.

Have no fellowship with the unfruitful
 works of darkness. —Eph. v. 11.
 Men are made for society and mutual fel-
 lowship. —Calamy.

2. a mutual sharing, as of experience,
 activity, interest, etc.; partnership; joint
 interest; as, fellowship in pain.

3. a group of companions or fellows; an
 association of persons having the same tastes,
 occupations, or interests; a band; a company.

The great contention of the sea and skies
 Parted our fellowship. —Shak.
 4. an endowment, or a sum of money paid
 from such an endowment, for the support of a
 graduate student in a university or college.

5. the rank or position of a fellow in a uni-
 versity or college.
 fel'low-ship, *v.i.*; fellowshipped, *pt.*, *pp.*; fel-
 lowshipping, *ppr.* to associate with as a fellow
 or member of the same church; to admit to

fel'low, *n.* [ME. *felow*, *felaghe*, a companion,
 partner, from Ice. *felagi*, a partnership, fel-
 lowship; *fe*, property, and *lag*, a laying to-
 gether, fellowship, from *leggja*, to lay.]

1. originally, a person who shares; partner
 or accomplice; hence, a companion; an asso-
 ciate; a comrade; a mate.
 In youth I had twelve fellows like myself.
 —Ascham.

APPENDIX

EXHIBIT B

Pages B1-B10

Exemplary listing of hook and loop product and processing patents.

Patents - Few of many hundreds

U.S. Patent No.

2,717,437	3,009,235	3,241,881
3,313,511	3,027,566	3,338,291
2,933,797	2,976,914	3,328,081
3,485,529	3,279,008	3,147,527
3,154,837	3,196,490	3,136,026
3,546,754	3,550,223	3,550,837
3,562,044	3,562,770	3,577,607
3,586,060	3,594,863	3,594,865
3,595,059	3,629,032	3,665,584
3,673,301	3,695,976	3,708,382
3,715,415	3,732,604	3,735,468
3,781,398	3,801,245	3,943,981
4,024,003	3,405,430	3,527,001
3,913,183	4,041,549	4,169,303
4,290,174	4,615,084	4,617,214
3,594,873	5,349,991	5,515,583
6,202,264	3,031,730	3,138,841
3,147,528	3,138,841	3,147,528
3,192,589	3,261,069	3,607,995
3,718,725	3,770,359	3,785,012
3,808,301	3,808,648	3,900,652
4,454,183	4,628,709	

and many, many more.

U.S. Patent No. 4,910,062 - Exemplary teachings.

First Sentence "Background Art": The art is replete with sheet materials that can be cut into smaller pieces to form portions of fasteners, and methods for making such sheet materials. U.S. Pat. Nos. 2,933,797; 3,009,235; 3,136,026; 3,154,837; 3,577,067; 3,673,301; 3,943,981; and 4,024,003 provide illustrative examples.

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Searching All Years...























Results of Search in All Years db for:
hook AND "loop fastener": 5215 patents.
Hits 1 through 50 out of 5215

Exemplary of
remaining 5215 Hits



hook AND "loop fastener"

PAT. NO.	Title
1 6,453,525	Double-bow shoe lace device
2 6,453,493	Covers for support pillows
3 6,453,475	Convertible visor/cap with a plurality of crown supports
4 6,453,204	Magnetic electrode for delivering energy to the body
5 6,451,405	Oil tarp assembly for heavy machinery
6 6,451,239	Process of making a hook fastener using radio frequency heating
7 6,450,944	Acceleration protective suit
8 6,450,895	Golf practice device with adjustable golf ball tee platform and adjustable leg stance platform
9 6,450,168	Infant sleeping blanket/garment for use with medical devices
10 6,450,131	Forward bending motion control harness
11 6,449,881	Detachable shoe wallet
12 6,449,777	Child-proof eyewear retainer strap assembly
13 6,449,770	Restraining garment device
14 6,448,742	Low profile battery pack with aircraft power provisions
15 6,447,362	Rotating musical remote control mobile device with detachable toys
16 6,447,353	Toddler/adult float jacket
17 6,447,165	Shipping container that can be stiffened
18 6,446,994	Bicycle fender system
19 6,446,852	Belt assembly for storage and inventory of tools
20 6,446,831	System for dispensing aprons
21 6,446,751	Apparatus and method for reducing noise levels
22 6,446,688	Carry bag with pouch insert and cover
23 6,446,577	Insulated cover for portable kernel
24 6,446,361	Transformable slipper toy
25 6,446,269	Concealed lower body garment support belt
26 6,443,986	Self-forming prosthetic device and method of making the same
27 6,443,805	Bra shelf and application thereof
28 6,443,787	Flying ski

- 29 [6,443,655](#)  [Flood barrier](#)
30 [6,443,617](#)  [Resealable sack or bag](#)
31 [6,443,525](#)  [Vehicle seat assembly and fastening device](#)
32 [6,443,499](#)  [Apparatus for pre-conditioned air hoses and a method of assembling pre-conditioned air](#)
33 [6,443,415](#)  [Computer monitor organizer assembly](#)
34 [6,443,407](#)  [Accessory tray for a tripod](#)
35 [6,443,335](#)  [Rapid comestible fluid dispensing apparatus and method employing a diffuser](#)
36 [6,443,297](#)  [Pulley lagging with hook and loop fastener attachment system](#)
37 [6,443,187](#)  [Aligning woven loop elements to form mounting sleeves](#)
38 [6,443,101](#)  [Pet apparel with leash](#)
39 [6,442,889](#)  [Insect and animal traps and holder for same](#)
40 [6,440,526](#)  [Non-slip pad](#)
41 [6,439,958](#)  [Breast saver comfort](#)
42 [6,439,733](#)  [Removable helmet light system](#)
43 [6,439,637](#)  [Golf cart cover](#)
44 [6,439,537](#)  [Forming mold with recess having snap-fit end seal](#)
45 [6,439,432](#)  [Personal safety device](#)
46 [6,439,314](#)  [Aqua boot for horses](#)
47 [6,439,221](#)  [Method and apparatus for providing a portable preassembled grill](#)
48 [6,439,167](#)  [Pet collar for use with pet containment system](#)
49 [6,439,152](#)  [Device for marking the path along the ground of a rolling wheel](#)
50 [6,438,900](#)  [Storage chamber](#)
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(4993 of 5215)

United States Patent
Yoshida

4,646,397
March 3, 1987

Surface-type fastener

Abstract

A surface-type fastener comprising a pair of fabric fastener strips, one fastener strip having on its one surface a number of *hook*-shaped engaging elements engageable with a number of loop-shaped engaging elements on one surface of the other fastener strip. One surface of each fastener strip has a first region in which the engaging elements are disposed, and a second region devoid of engaging elements. The other surface of the individual fastener strip has, in registry with the first region, an area covered with synthetic resin.

Inventors: Yoshida; Hiroshi (Kurobe, JP)
Assignee: Yoshida Kogyo K. K. (Tokyo, JP)
Appl. No.: 744255
Filed: June 13, 1985

Foreign Application Priority Data

Jun 18, 1984[JP]

59-90592[U]

Current U.S. Class:

24/442; 24/443; 24/448

Intern'l Class:

A44B 013/00

Field of Search:

24/442, 443, 444, 445, 446, 447, 448, 451, 452, 426 2/DIG. 6 112/265.1, 406

References Cited [Referenced By]**U.S. Patent Documents**

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<u>3849840</u>	Nov., 1974	Yamada et al.	24/448.
<u>4089068</u>	May., 1978	Swallow	2/DIG.
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Foreign Patent Documents

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57-27289	Jun., 1982	JP.	

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(5019 of 5215)

United States Patent
Erb

4,615,084
October 7, 1986

Multiple *hook* fastener media and method and system for making**Abstract**

Multiple *hook*-fastener media in which many protruding hooks are formed at relatively high speed from suitable bendable and settable plastic material which may be different from the substrate to which these pre-formed hooks are subsequently bonded. Many rows of hooks are formed simultaneously, each row from a strand, for example, a monofilament of longitudinally oriented polymeric material. The formed strands are "set" into their multiple *hook* row configuration, and then these pre-formed rows of hooks are simultaneously bonded to the substrate. Thus, an attractive substrate of any reasonable width, for example, of three inches, six inches, a foot or a yard, may be used. The production method and system enable the number of hooks per square inch, either longitudinally or laterally or both, to be adjusted while running. The shank of each *hook* includes two legs, and the production method and machine can be adjusted while running for making hooks with crossed legs, uncrossed legs or divergent legs for achieving varieties of configurations and characteristics, as desired for various applications. Advantageously, the production can be changed for making taller or shorter hooks and for making hooks with differently shaped arcuate ends by exchanging one pair of meshing (interdigitating) shaping belts for another. The substrate material may be woven or unwoven and may comprise multiple layers including metal or plastic layers or both. The substrate with mounted hooks can be slit longitudinally for producing many *hook*-fastener tapes at relatively fast overall lineal speed. Consequently, the *hook*-fastener media of this invention with their various sizes, shapes, widths and characteristics, fabricated by relatively low-cost, high-speed production hold promise of becoming widely available, widely used, commodity-type products which will find their way into myriads of applications of benefit to human beings in years to come.

Inventors: Erb; George H. (Cuttingsville, VT)
Assignee: Erblok Associates (Charlottesville, VA)
Appl. No.: 643001
Filed: August 21, 1984

Current U.S. Class: 24/442; 24/306; 156/66; 264/296; 428/93; 428/100; 428/369
Intern'l Class: A44B 018/00
Field of Search: 24/306,442,445 156/66 264/235,296 428/93,100,369

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3196490	Jul., 1965	Erb.	
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3586060	Jun., 1971	Erb	139/46.

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United States Patent
Higashinaka

4,920,617
May 1, 1990

Separable fastener

Abstract

Described herein is a male fastener strip having a multitude of hooking elements on one side of substrate cloth, which is characterized in that the individual hooking elements are spaced from adjacent hooking elements by X(mm) and Y(mm) in the transverse and longitudinal directions of the fastener strip, respectively, such that X is between 2.0 and 4.0 mm, inclusive and X/Y is in the range of 0.5 to 3.5.

Inventors: Higashinaka; Yukitoshi (Iruma, JP)
Assignee: Kuraray Company, Ltd. (Kurashiki, JP)
Appl. No.: 266329
Filed: November 1, 1988

Foreign Application Priority Data

Jul 30, 1986[JP]

61-181154

Current U.S. Class:

24/442; 24/446; 24/450

Intern'l Class:

A44B 018/00

Field of Search:

24/442,446,452,449,445,443,444

References Cited [Referenced By]**U.S. Patent Documents**

3405430	Oct., 1968	Sidelman	24/450.
3527001	Sep., 1970	Kleemeier et al.	24/446.
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4615084	Oct., 1986	Erb	24/442.
4617214	Oct., 1986	Billarant	24/444.

Foreign Patent Documents

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United States Patent
Higashinaka , et al.

6,386,242
May 14, 2002

Hook fastener member to minimize damage to loops**Abstract**

A flexible **hook** fastener member having a **hook** density of 80 to 200 per cm.sup.2 and causing little damage to cooperating loop fastening elements. The loops for forming **hook** fastening elements are produced by thin monofilaments having a fineness of 100 to 200 deniers. The monofilament for forming the **hook** fastening elements are in reverse phase relation to the adjacent ground warps with respect to the ground wefts.

Inventors: Higashinaka; Yukitoshi (Fukui-ken, JP); Itoh; Hiroshi (Osaka-fu, JP)

Assignee: Kuraray Co., Ltd. (Kurashiki, JP)

Appl. No.: 618844

Filed: July 18, 2000

Foreign Application Priority Data

Jul 30, 1999[JP]

11-216238

Current U.S. Class:

139/391; 24/445

Intern'l Class:

A44B 018/00

Field of Search:

24/445 139/384 B,391

References Cited [Referenced By]

U.S. Patent Documents			
3594873	Jul., 1971	Hockmeyer, Jr.	139/391.
5349991	Sep., 1994	Okawa et al.	139/391.
5515583	May., 1996	Higashinaka	24/446.
6202264	Mar., 2001	Ishihara	24/445.
Foreign Patent Documents			
6-52521	Jul., 1994	JP.	

Primary Examiner: Falik; Andy

Attorney, Agent or Firm: Oblon, Spivak, McClelland, Maier & Neustadt, P.C.

Claims

What is claimed is:

1. A **hook** fastener member with damage to the to cooperating loop fastening elements minimized, comprising:

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United States Patent
Provost, et al.

5,953,797
September 21, 1999

Hook fasteners and methods of manufacture**Abstract**

A **hook** fastener member having rows of molded **hook**-shaped fastener elements that lie in planes aligned with the rows, with generally planar plate portions at the outermost ends of at least some of the fastener elements, the plate portions lying generally parallel to the base of the fastener member. The plate portions can enhance engagement of the **hook** fastener members with mating **loop fastener** members, particularly with low loft non-woven **loop fastener** members. A method of making fastener members is provided. Molten resin is extruded and applied to a molding roller, creating preforms. The outermost portions of at least some of the preforms are flattened, thereby forming generally plate shaped portions. Disposable absorbent garments advantageously incorporate the **hook** fastener members.

Inventors: Provost; George A. (Litchfield, NH); Condon; Mark J. (Melrose, MA); Leak; A. Todd (Neenah, WI); Roslansky; Apiromraj S. (Little Chute, WI); Serbiak; Paul J. (Appleton, WI)
 Assignee: Velcro Industries B.V. (Curacao, NL)
 Appl. No.: 731061
 Filed: October 9, 1996

Current U.S. Class:

24/452; 24/304; 24/442; 24/446

Intern'l Class:

A44B 018/00

Field of Search:

24/452,442,445,446,448,304

References Cited [Referenced By]

U.S. Patent Documents			
<u>3031730</u>	May., 1962	Morin	24/452.
<u>3138841</u>	Jun., 1964	Naimer	24/204.
<u>3147528</u>	Sep., 1964	Erb	24/204.
<u>3192589</u>	Jul., 1965	Pearson	24/204.
<u>3261069</u>	Jul., 1966	Mathison	24/204.
<u>3607995</u>	Sep., 1971	Chiba	264/15.
<u>3718725</u>	Feb., 1973	Hamano	264/163.
<u>3770359</u>	Nov., 1973	Hamano	425/305.
<u>3785012</u>	Jan., 1974	Billarant	24/204.
<u>3808301</u>	Apr., 1974	Pruden	24/80.
<u>3808648</u>	May., 1974	Billarant et al.	
<u>3900652</u>	Aug., 1975	Uraya et al.	428/92.
<u>4169303</u>	Oct., 1979	Lemelson	24/452.
<u>4290174</u>	Sep., 1981	Kalleberg	24/204.
<u>4454183</u>	Jun., 1984	Wollman	428/92.
<u>4628709</u>	Dec., 1986	Aeschbach et al.	

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United States Patent
Akeno, et al.

D457,053
May 14, 2002

*Hook element piece for hook-and-loop fastener*ClaimsThe ornamental design for a *hook* element piece for *hook-and-loop fastener*, as shown and described.

Inventors: Akeno; Mitsuru (Kurobe, JP); Minato; Tsuyoshi (Toyama-ken, JP)
 Assignee: YKK Corporation (Tokyo, JP)
 Appl. No.: 101309
 Filed: February 26, 1999

Foreign Application Priority Data

Sep 02, 1998[JP]

10-25157

Current U.S. Class:

D8/382

Intern'l Class:

0805/

Field of Search:

D8/382 24/452,442,448,444,453

References Cited [Referenced By]

U.S. Patent Documents			
<u>5067210</u>	Nov., 1991	Kayaki	24/442.
<u>D367419</u>	Feb., 1996	Murasaki	D8/382.
<u>D374813</u>	Oct., 1996	Akeno	D8/382.
<u>D376533</u>	Dec., 1996	Akeno	D8/382.

Primary Examiner: Baynham; Holly
 Attorney, Agent or Firm: Hill & Simpson

DescriptionFIG. 1 is a front view of a *hook* element piece for a *hook-and-loop* fastener.FIG. 2 is a top plan view of the *hook* element piece of FIG. 1.FIG. 3 is a right side view of the *hook* element piece of FIG. 1.FIG. 4 is a base view of the *hook* element piece of FIG. 1.

FIG. 5 is a cross-sectional view taken on line 5-5 of FIG. 2; and,

FIG. 6 is a fragmentary perspective view of the *hook* element piece of FIG. 1.

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United States Patent
Provost, et al.

4,654,246
March 31, 1987

Self-engaging separable fastener**Abstract**

A self-engaging separable fastener is disclosed which comprises a base member of woven separable fastener material having at least two adjacent mating fastener sections. At least one section is defined by a plurality of loops upstanding from the base member, and the other section is defined by a plurality of hooks upstanding from the base member. The loops are formed of respective generally parallel rows of multifilament yarns interwoven into their respective base section so as to repeat the same loop direction and construction every predetermined number of picks and the hooks are cut from respective generally parallel rows of loops of monofilament yarns interwoven into their respective base section so as to repeat their loop direction and construction every predetermined number of picks, which latter number of picks is greater than the number of picks in which the direction of the multifilament loops is repeated. The density of the monofilament hooks is less than the density of the multifilament loops such that the sections of fastener material may be placed in face-to-face engagement by folding one section over the other and pressing the surfaces together and separated by peeling forces normal to the interfacial plane of engagement. Preferably the loops repeat themselves every four picks and the hooks repeat themselves every eight picks.

Inventors: Provost; George (Manchester, NH); Ouellette; Marcel C. (Bedford, NH)
Assignee: Actief, N.V. (Curaco, AN)
Appl. No.: 772591
Filed: September 5, 1985

Current U.S. Class: 428/88; 26/2R; 26/8C; 26/8R; 26/29R; 428/100
Intern'l Class: B32B 003/06
Field of Search: 428/88,92,100 139/2 28/214 26/2 R,8 R,8 C,29 R 156/72

References Cited [Referenced By]

U.S. Patent Documents			
4058853	Nov., 1977	Boxer et al.	428/100.
4165555	Aug., 1979	Boxer et al.	428/100.

Primary Examiner: McCamish; Marion C.
Attorney, Agent or Firm: Pennie & Edmonds

Claims**We claim:**

1. A self-engaging separable fastener which comprises a base member of woven separable fastener material having at least two adjacent mating fastener sections, at least one section defined by a plurality of loop-like engaging elements upstanding from said base member, the other section defined by a plurality of *hook*-type engaging elements upstanding from said base member, said loop-like engaging elements being formed of respective generally parallel rows of loops of multifilament yarns interwoven into their respective base section so as to

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Company Name	Location	Description
Velcro USA Inc.	Manchester, NH	Hook & Loop Fastening Systems For Industrial Applications Where Separation & Rejoining Of Components Is Necessary, Or Where...
Middleburg Thread & Sewing Supply	Warminster, PA	Hook & Loop Fasteners, Sewing Quality, Pressure Sensitive, Heat Activated, Solvent Activated, Polyester, Display Pile....
Fasnap Corp.	Elkhart, IN	Wholesale Distributor Of Snap Fasteners, Turn & Directional Fasteners, Grommets, Panel Fasteners, Metal & Plastic Hardware,...
Toleeto Fasteners International	San Ysidro, CA	Reusable Hook & Loop Cable Ties, Wrist Bands & Custom Fabricated Straps For A Variety Of Applications. Ultrasonic Welding &...
Loktite, Inc.	Timonium, MD	Dist. 3M & Other Hook & Loop Fasteners. Plain Backed, Pressure Sensitive, Dual Lock & Solvent / Heat Activated. Tapes,...
National Webbing Products Co.	Garden City Park, NY	Complete Line Of Hook & Loop In All Widths & Colors. On Spools Or Cut Pieces, Hook & Loop Straps
Levitt Industrial Textile Co.	Hicksville, NY	Dist. Of Velcro® Brand Hook & Loop Tape, Coins & VELCLOTH™ Brand Display Fabric. Special Colors, Widths, Lengths, Cut...
Gleicher Manufacturing Corp., A 3M Distributor	Scotch Plains, NJ	Rotary & Flatbed Die Cutting, Laser Cutting, Clean Room Processing, Tapes, VHB®, Dual Lock®, Bumpers®, A 3M Dist.
Bond Products Inc.	Philadelphia, PA	Suppliers Of Narrow Fabrics, Including Woven Tapes, Hook & Loop Tape & Dots, Drawcord Braids, Webbing, Elastics, Tying...
Bardsco	St. Louis, MO	Reusable Hook & Loop Cable Ties, Wrist Bands & Custom Fabricated Straps For A Wide Variety Of Applications. Ultrasonic...
Touchtape, Inc.	St. Augustine, FL	Standard & PS Hook & Loop Tape & PS Dots Available. In-House Mfg. & Fabrication. Custom Orders
Perfectex Plus LLC	Huntington Beach, CA	Hook & Loop Fasteners. Sew-On Pressure-Sensitive Tapes. Heat & Solvent Activated Tapes. Fire-Retardant. Mil. Spec. Custom...
Action Fabricators	Grand Rapids, MI	Pressure Sensitive Adhesives, Tapes, Rubber Bumpers, Felt Feet & Pads. Die Cutting Of Various Materials. Specialize In...
Speedtech International, Inc.	Chicago, IL	Mfr. & Dist. Of Hook & Loop Fasteners. Stocking VELCRO®, SPEEDWRAP® & Other Brands
WBC Industries, Inc.	Westfield, NJ	Hook & Loop Fasteners
Rip 'N Grip Industries, Inc.	Palmdale, CA	Mfr. & Dist. Of Hook & Loop Fastening Tapes
American Cord & Webbing Co., Inc.	Woonsocket, RI	

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<u>Industrial Tape & Supply Co.</u>	Marietta , GA	Complete Line Of Tape & Packaging Supplies Including 500 Varieties Of Pressure Sensitive Tapes, Tape Dispensers, Carton...
<u>Griff Paper & Film</u>	Fallsington , PA	Release Liners For The Pressure Sensitive Fastener Industry. Paper & Film Substrates. Printing Logos A Specialty
<u>T & W Converters, Inc.</u>	Glendale , CA	Tape Die-Cutting, Printing, Slitting, Rewinding & Laminating. In-House Printing Of Carton Sealing & Gummed Tape. Dist. Of...
<u>Adhesives & Tapes Industrial Supply</u>	Vista , CA	Adhesives, Sealants, Coatings, Encapsulants, Tapes & Application Equipment. Casting Resin, Acrylic, Anaerobic,...
<u>Granat Industries, Inc.</u>	Elk Grove Village , IL	Hook & Loop (Sewing Quality - Pressure Sensitive) All Widths In Stock. Thread, Webbing, Plastic & Metal Hardware, Rivets,...
<u>Hang-Ups Unlimited, Div. of Magna-Pole Products, Inc.</u>	Santa Monica , CA	Mfrs. Of Adhesive, Magnetic & Suction Cup Hooks & Mechanical Fasteners For Hanging Promotional & Permanent Indoor Displays,...
<u>FASTENation, Inc.</u>	Passaic , NJ	Dist. & Fabricator Of Hook & Loop Fasteners, 3M Dual Lock

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Can-Do National Tape	Nashville, TN	Pressure Sensitive Tapes For Every Application; Complete Line Of Converting Capabilities & Specialty Tapes; All Widths,...
WCL Company	City Of Industry, CA	Cable Ties & Clamps; Cuff Restraints; T-Clamps; Nail Clips; Hose Clamps; Wire Ducting; Patch Panels
MSC Industrial Supply Co.	Melville, NY	Supplier Of 450,000 Products From 2,500 Mfrs.: Cutting / Machine / Hand / Power Tools, MRO Supplies, Abrasives, Fasteners,...
TekSupply	South Windsor, CT	Wholesale Mfr. & Dist. Serving The Agricultural, Building, Repair & Maintenance Industries: Specializing In ClearSpan™...
Meyers, A., & Sons Corp.	New York, NY	Hook & Loop, Straps, Cut Pieces. Sew On & Pressure Sensitive. Fibre Optic Bundle Straps
World Fasteners, Inc.	Hampstead, MD	Over 195 Million Fasteners In Stock In All Materials, Sizes & Shapes. Military, Commercial, Fed-Milspec, AN-MS-NAS....
Seton Identification Products	Branford, CT	Hook & Loop
Linal, Inc.	Bristol, CT	Supplier & Mfr. Of Metal Snap Hooks & Snap Closures For Pet Leads, Tents, Marine, Military Specification & A Wide Range Of...
Nielsen / Sessions	Hartford, CT	Global Mfr. Of Latches, Hinges, Handles, Locks & Hardware. Standard & Custom Engineered Applications To Industrial,...
Clements Industries Inc.	South Hackensack, NJ	Mfrs. Of Pressure Sensitive Tape & Label Dispensers, Bag Sealers, Cable Ties, Packaging Machinery, Twist Tie Machines &...
Dienetics, Inc.	Grand Rapids, MI	Die Cut, Stamped & Lasercut Plastic, Rubber, Foam, Cork, Fibre & Adhesive Backed Non-Metallic Materials. Mfr. Of Laser Steel...
Pacific States Felt & Mfg. Co., Inc.	Hayward, CA	Cut To Specs.
HellermaunTyton, A Spirent Co.	Milwaukee, WI	Cable Management Products Including Cable Ties, Clips, Clamps & Other Fasteners
Covert Co., Inc.	Baltimore, MD	Mfg. Adhesive Machinery For Bonding Hook & Loop Material To Plastics & Metals
Gem Office Products Co., LLC	Jacksonville, FL	Paper Clips, Brass & Steel Paper Fasteners, Metal Meat Skewers, Pin Tickets, Thumb Tacks, Pins, Package Handles, Specialty...
HyTech Spring And Machine	Plainwell, MI	Flat Springs, Retainers, Snap Rings, Clamps, Rings, Wire Forms & Any Type Of Helical Springs With Size .002" & Up. Certified...
Converters Inc.	Huntingdon Valley, PA	Specializing In Custom Slitting, Die Cutting & Laminating Of Pressure Sensitive Tapes
Atlantic Gasket Corp.	Philadelphia, PA	Mfr. Of Gaskets, Die-Cut Parts & Fabrications From A Wide Range Of Non-Metallic Materials, Including

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<u>Advanced Fabricating Technology, Inc.</u>	Grand Rapids, MI	Die Cutting, Fabricating, Stamping, Laminating, Packaging & Screen Printing Of Plastics, Rubber, Adhesives, Foam & Fibre....
<u>Enco Manufacturing Co.</u>	Farmingdale, NY	Metalworking & Woodworking Tools, Machines & Supplies
<u>Diamond Fasteners, Inc.</u>	Farmingdale, NY	Distribute Fasteners & Electronic Hardware. In Stock Military Specs. (AN-MS-NAS), Aerospace / Aircraft Fasteners, Standard /...
<u>Able National Corp.</u>	Brooklyn, NY	Turnkey Contract Mfr. Of All Die Cut Products; Magnets, Filters, Gaskets, Washers, Advertising Specialties; Design, Printing
<u>Alliance</u>	Hot Springs, AR	Designer & Mfr. Of All Varieties Of Rubber Bands For All Applications Including Office, Home, Industry & Produce. Packaging,....

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Greene Rubber Co., Inc.	Woburn, MA	Dist. & Fabricators Of Hook & Loop Materials. Strips Or Die Cut Parts To Specification. Dies Made On Premises
Leonard Industrial Supply	Westbury, NY	Complete Line: Hand Tools, Fasteners, 3M Abrasives, Adhesives, Chucks, Cutting Tools (Drills, End Mills, Reamers),...
Century Marketing Corp.	Bowling Green, OH	Plastic Hook, Tachers, Self Fastening. Hang Tags & Garment Bags Also Available
Deccofelt Corporation	Glendora, CA	Converters Of A Wide Range Of Materials Into Adhesive Coated Products. Complete Die-Cutting & Slitting Facilities
Reid Tool Supply Co.	Muskegon, MI	35,000 Items In Stock, No Minimum Order
Robbins Lightning, Inc.	Maryville, MO	Mfrs. Of A Complete Line Of Lightning Protection & Static Grounding Materials Which Comply With The Requirements Of Codes...
A+ Products, Inc.	Brooklyn, NY	Stampings, Die Casted, Wire Forms, Split Keyrings, O & D Rings, Suspender, Luggage & Plastic Hardware, Zippers
Diversified Foam Products Inc.	Pennsauken, NJ	Custom Foam Fabrication, Precision Slitting, High-Speed Die Cutting, Flame Lamination, Hot Wire & Kiss Cutting. Specializing...
Rapid Rivet & Fastener Corp.	Farmingdale, NY	Master Dist. Of All Types Of Rivets, AN, MS, Commercial. Solid Semi-Tubular Blind, Drive Rivets & Rivet Nuts
Hudson Fasteners, Inc.	Bay Shore, NY	Full Line Mfr., Dist. Fasteners: Screws, Nuts, Bolts, Washers, Hardware, Fastener Assortment Kits. All Grades, Materials &...
Fastening Products Inc.	Laguna Hills, CA	Mfr., Distributor, Importer, & Wholesaler Of Commercial Grade Fasteners For Sale To OEM's. Standard Items Available...
Wayne Bolt & Nut Co.	Detroit, MI	Fasteners; Bolts, Screws, Nuts, Pins, Dowels, Spacers, Fittings. Standards Or Specials From Blue Prints. Ferrous Or Non...
FFr / Fasteners For Retail	Cleveland, OH	Merchandising Systems & Accessories Including Sign Holders, Shelf Management Systems, Ceiling Display Products, Product...
Allied Manufacturers	Corona, CA	Supplier Of Machined Components & Products. Products To Every Industry; From Designers Of Skates To Builders Of Jumbo Jets
P & H Metal Products Corp.	Valencia, CA	Mfr. Of More Than 1500 Luggage / Custom Hardware; Buckles, Hooks, Snaps, Rivets, Rings, Slides, Tie-Downs
Cable Markers Co., Inc.	Lake Forest, CA	Identification Products, Wire Markers, Computer Printable Systems, Labels, Tags, Heat Shrink Sleeving, Serialization, Bar...

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<u>Brand Preference Development Co.</u>	St. Louis, MO	Hinges, Hardware, Locks, Latches & Foam Tape, Plastic & Metal Trim
<u>Astrup</u>	Cleveland, OH	Dists. Of Hardware For Awning, Tent & Marine Applications. Also Awning, Sign, Marine, Tarp & Tent Fabrics As Well As...
<u>Clip Strip Corp.</u>	Hackensack, NJ	Mfrs. Of Display Fixtures, Clip Strips, Holders For: Price Channels, Signs, Banners, Cards, Labels
<u>Advanced Cable Ties, Inc.</u>	Gardner, MA	Mfg. & Specializing In Nylon, Stainless Steel, & Hook & Loop Cable Ties, Cable Tie Accessories, Cable Clamps, Cable Wraps,...
<u>Premier Fasteners, Inc.</u>	Farmingdale, NY	Stocking Dist. Of Fasteners; Nuts, Bolts, Rivets, Screws, Washers, & Hardware For Commercial, Industrial & Aerospace Markets
<u>Associated Bag Co.</u>	Milwaukee, WI	Reusable Ties With / Without Buckle In Black. Self-Adhesive Velcro® Coins. Packaging & Shipping Supplies
<u>Allan Zipper Mfg. Corp.</u>	Brooklyn, NY	Nylon Molded & Metal Zippers, Hook & Loop Fasteners, Separators, Closures. Assembler / Distributor
<u>3M Co. / Corp. Mktg. & Public Affai.</u>	St. Paul, MN	Serving Several Markets Including: Automotive, Communication Arts, Construction & Maintenance, Consumer, Electronics /...

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Plitek, LLC	Des Plaines, IL	Specialists In Custom Die Cutting, Slitting, Laminating, Coating, Spooling, Plastic Extrusion & Fabrication Of Precision...
Moore, Howard J., Co., Inc.	Huntington Station, NY	Plastic & Insulating Parts & Material; Rubber Gaskets, Die Cutting, Stamping, Screw Machine Parts
Secon Rubber & Plastics, Inc.	Red Bud, IL	3M Converter, Foam Tapes, Gaskets, Pressure Sensitive Adhesives, Diecutting, Laminating, Slitting, VHB Tapes, Converter &...
New Brunswick Plating, Inc.	New Brunswick, NJ	Plating & Surface Finishing Of Complex Components In The Electronic, Medical & Electrical Industries... Plate On A Large...
Crest Lock Co., Inc.	Brooklyn, NY	Mfr. / Designer Of Specialty Hardware For Transit & Instrument Cases & Trunks, Cabinets, Luggage. Standard & Custom Handles,...
Wirewright Manufacturing	Camarillo, CA	All Types Of Commercial, Industrial, Military Buckles. Products Include D-Rings, Medical Buckles, Plastic Buckles, Snap...
Harper Aerospace	Corona, CA	Fasteners Found In Satellites, Nuclear Applications, Radar Equipment, Turbine Engines & High-Pressure Pumps
Audion Automation, Ltd.	Addison, TX	Mfr. Of Flexible Packaging Systems & Packaging Machinery: Shrink Packaging, Bag Packaging & Skin Packaging. Products...
Breeze Eastern	Union, NJ	Rescue Hoists, Cargo Winches & Hook / Tie-Down Systems For Helicopters, Other Aircraft & Ships
Textol Systems, Inc.	Carlstadt, NJ	Distributor & Fabricator Of Hook & Loop Products
Delafield Fluid Technologies	Duarte, CA	Supplier Industrial Hoses, Including Hose Accessories & Fittings
Vicar International	Union, NJ	Mfrs. Of Snap Fasteners, One Way Fasteners, Baby Snaps, Curtain Fasteners, Turnbuckles, 100% Stainless Steel Snap Fasteners...
Tape Specialists Of Georgia Inc.	Americus, GA	Supplier & Converter Of Pressure Sensitive Tapes, Foams, Diecuts / Extrusions & Packaging Materials. Representing The...
Sutherland Felt Co.	Troy, MI	Mfr., Die Cutting, & Fabricating Felt, Cork, Rubber, Foam, Leather, Hi-Temp materials. Fast Turnaround, Short Runs Welcome
Tapeler Tape Machine Corp.	Ashland, MA	Automatic Or Semi-Automatic High-Speed Tape Applicators For All Types Of Pressure Sensitive Tape With Or Without Liner,...
Ribbon Webbing Corp.	Chicago, IL	Mfrs. Of Polypropylene, Nylon & Polyester Webbing, Also Hook & Loop, Gros Grain. Webbing For All Purposes, In All Colors &...
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<u>Richco, Inc.</u>	Chicago, IL	Plastic Fasteners, Circuit Board Hardware, Wire Routing Products, Cable Ties, Clips & Clamps, Fiber Optic &...
<u>Integrity Fasteners, Inc.</u>	Orange, CA	Dist. Fasteners, AN-MS-NAS, BAC Hardware, Inserts, Nuts, Bolts, Screws, Washers, Fittings, Connectors. Metric & Standards,...
<u>Plasti-Clip Corporation</u>	Milford, NH	Price Channel Sign Holders, Clips, Accessories
<u>D.J. Associates, Inc.</u>	Fort Smith, AR	Miscellaneous Hardware, Webbing & Tapes, Small Quantity Specialists
<u>Barjan Manufacturing Ltd.</u>	Farmingdale, NY	Hook & Loop Fastening Systems For Drapery Systems, Secure Guard™ Systems
<u>American Trade Group, Inc., Left Hand Bolt & Nut Div.</u>	Detroit, MI	Large Inventory Of Finished Left-Hand Hex Head Caps; Socket Caps & Hex Nuts
<u>MULTI TRIM</u>	New York, NY	Mfrs. & Dist. Of Full Line Of Industrial Sewing & Trimming Supplies In Any Colors & Styles

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Company Name	Location	Description
Manderscheid Equipment & Supply	Chicago, IL	3M Hook & Loop Available
Jontay	Waycross, GA	Dist. Of Webbing, Hardware, Buckles, & Notions. Plastic & Metal Buckles, Hook & Loop Elastic.
Pam Narrow Fabrics Corp.	Freeport, NY	
Suncor Stainless, Inc.	Pembroke, MA	
Andfel Corp.	Bloomington, IN	Hand Held Attaching Tool Systems To Replace Thread, Metals STaples & Pins For Fabric, Drapery & Upholstery Applications....
Mil-Spec Fasteners Corp.	Hampstead, MD	Over 200 Million Fasteners In Stock, All Sizes / Materials, Hard-To-Find Items Military Specifications, MS-NAS-NASM,...
Ronstan International Inc.	Largo, FL	Mfr. Stainless Steel Narrow, Ferrule Eye & Flared Top Eye Straps. Also, Pulleys Sheaves, Rope Cleats, Stainless Steel...
Norse, Inc.	Torrington, CT	Latches-Spring Loaded: Surface Mounted Externally / Internally-Mortised, Sealable, Ganged & Remotely Operated
Triforce Fasteners	Upland, CA	Complete Line Of Fasteners: Nuts, Bolts, Screws, Rivets, Retainers For Various Applications Covering Mil-Spec, Aerospace,...
Missouri Threaded Rod, Inc.	St. Louis, MO	Mfr. Of Threaded Rods Studs, Bolts, Nuts, Washers, Screws In Alloys & Stainless Steel
Stewart Handling Systems	Chino, CA	
Quintana Industrial Supply, Inc.	Lawrence, MA	
U.S. Slide Fastener Corp.	Boston, MA	
Peters-De Laet, Inc.	South San Francisco, CA	
ATCO	Houston, TX	
Scovill Fasteners, Inc. (DOT, PCI)	Clarksville, GA	Fasteners
Komar / Stitchcraft	Elk Grove Village, IL	
Argent Automotive Systems	Novi, MI	
Bisco Int'l. Inc.	Hillside, IL	Fasteners For Temporary & Permanent Jobs
Aplix, Inc.	Charlotte, NC	
Emar Separator Co., Inc.	Long Island City, NY	Mfrs. Of Metal, Plastic, Nylon Zippers. Separators, Slide Fasteners Of All Sizes & Types
Lockfast, Inc.	Cincinnati, OH	
Lockfast-West	North Las Vegas, NV	
CustomFab Inc.	Huntington Beach, CA	
Royalox International, Inc.	Phillipsburg, NJ	

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Versa-Flex Inc.	Cleveland, OH	Contract Sewing, Design, Prototypes, Large & Small Runs
Schwartz, Gerald, Inc.	Tucker, GA	
RAK Foam	Cedar Knolls, NJ	
Creative Packaging, Inc.	Tulsa, OK	
Fare's Industrial Tools & Supply	Corona, CA	
Magic Tape Corp. DBA Inloc	Passaic, NJ	
Mountainview Specialties Inc.	Perkasie, PA	
Vanguard Performance Plastics	Elkhart, IN	Single & Double Coated Foam Tapes
GB Vision	Milwaukee, WI	
S.T. Robb Co.	Edina, MN	Dist. Of Nuts, Bolts, & Screws. All Sizes
Ozland Enterprises, Inc.	Vicksburg, MI	Hook & Loop Straps & Fastening Systems: Variety Of Applications
YKK (U.S.A.) Inc.	Lyndhurst, NJ	
Popco Inc.	Minnetonka, MN	Brand Adhesive Backed Hook & Loop
Mikron America, Inc.	Paterson, NJ	Grommets, Caps, All Button Fastening & Covering Applications
Ooltewah Mfg., Inc.	Ooltewah, TN	Heat Sealing, Ultrasonic Sealing, Hook & Loop Cutting, Mating, Sewing & Bonding. Strapping, Hook & Loop, Patented...
Cansew, Inc.	Montreal, QC	
Valley Enterprises, Inc.	Udly, MI	
Technifast Industries, Inc.	Carol Stream, IL	Custom Cold-Headed Products, Specialty Fasteners, Screws, Special Items
Iver Display	Bangor, PA	
Progressive Plating Technology, Inc.	Bridgeport, CT	ISO 9002 Certified, Automated Barrel Electroplating Certifying To Specs
Vers-A-Flect	Wilmot, NH	2", 1-1/2", 1", 5/8", Black & Navy Blue
Automatic Plating	Bridgeport, CT	
King, John, Inc.	City of Commerce, CA	
Fastening Products Of Lancaster	Lancaster, PA	Mfr. Distributor Of A Variety Of Fasteners. Standard, Metric, Military, Aerospace. All Alloys. Large Inventory. On Premise...
AccuMED Technologies, Inc.	Buffalo, NY	

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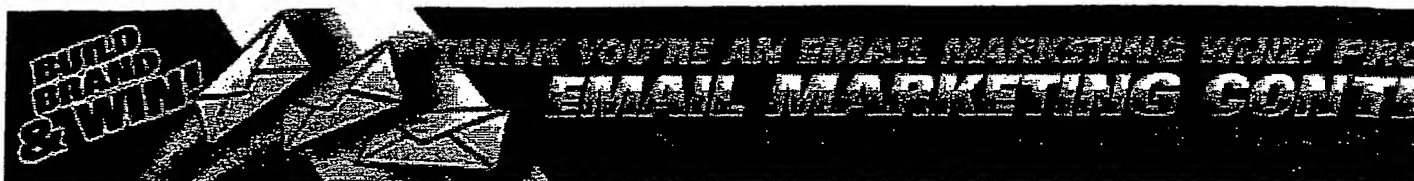
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Company Name	Location	Description
Great Industries Corp.	Ontario, CA	Mfr. Of Hook & Loop Tapes & Neoprene Sheet
Excel Thread & Sewing Supply	Passaic, NJ	Mfr. & Distributor Of Industrial Sewing Threads
Ideal Fastener Corp.	Oxford, NC	
Valley Products Co.	York New Salem, PA	Sew-In Labels, Narrow Fabrics, Cotton Or Synthetic Tapes
Atron Products & Services	Alpha, NJ	
Design / Craft Fabric Corp.	Niles, IL	
Hart Industries, Inc.	Owings Mills, MD	
Scovill Fasteners, Inc.	Clarkesville, GA	
Grimes Industrial Products Group	Toronto, ON	
Baron Industries, Inc.	Pine Brook, NJ	
Consumer Care Products, Inc.	Plymouth, WI	Plastic & Fabric Tape
JRM Industries, Inc.	Passaic, NJ	
Kronke Co., Inc.	Hayward, CA	
Natvar Co., A Tekni-Plex Co.	Clayton, NC	Electrical Sleeving & Insulation, General Purpose & Specialized Plastic Tubing
Saunders Corp. Div., R.S. Hughes Inc.	Glendale, CA	
Ward & Kennedy Co.	Milwaukee, WI	
Merlin Industries	New York, NY	Hook / Loop Fasteners, Buttons, Zippers, Shoulder Pads For Apparel

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Velcro USA Inc.	Manchester , NH	Hook & Loop Fastening Systems For Industrial Applications Where Separation & Rejoining Of Components Is Necessary, Or Where...
Perfectex Plus LLC	Huntington Beach , CA	Hook & Loop Fasteners. Sew-On Pressure-Sensitive Tapes. Heat & Solvent Activated Tapes. Fire-Retardant. Mil. Spec. Custom...
National Webbing Products Co.	Garden City Park , NY	Complete Line Of Thermoplastic & Metal Components For Handbags, Sportbags, Luggage, Straps, Apparel, Footwear, Belts, Auto,...
American Cord & Webbing Co., Inc.	Woonsocket , RI	Assorted Sizes & Materials
Levitt Industrial Textile Co.	Hicksville , NY	Dist. Of Velcro® Brand Hook & Loop Tape, Coins & VELCLOTH™ Brand Display Fabric. Special Colors, Widths, Lengths, Cut...
Speedtech International, Inc.	Chicago , IL	Mfr. & Dist. Of Hook & Loop Fasteners. Stocking VELCRO®, SPEEDWRAP® & Other Brands
WBC Industries, Inc.	Westfield , NJ	Hook & Loop Fasteners
Tapeleer Tape Machine Corp.	Ashland , MA	Automatic Or Semi-Automatic High-Speed Tape Applicators For All Types Of Pressure Sensitive Tape With Or Without Liner,...
Bond Products Inc.	Philadelphia , PA	Suppliers Of Narrow Fabrics, Including Woven Tapes, Hook & Loop Tape & Dots, Drawcord Braids, Webbing, Elastics, Tying...
Middleburg Thread & Sewing Supply	Warminster , PA	Sew-On, Pressure Sensitive, Heat Activated, Solvent Activated, Polyester, Cut Pieces, Fabricated Straps & Assemblies
Tolleto Fasteners International	San Ysidro , CA	Reusable Hook & Loop Cable Ties, Wrist Bands & Custom Fabricated Straps For A Variety Of Applications. Ultrasonic Welding &...
Bardisco	St. Louis , MO	Reusable Hook & Loop Cable Ties, Wrist Bands & Custom Fabricated Straps For A Wide Variety Of Applications. Ultrasonic...
Touchtape, Inc.	St. Augustine , FL	Standard & PS Hook & Loop Tape & PS Dots Available. In-House Mfg. & Fabrication. Custom Orders
Lea & Sachs, Inc.	Des Plaines , IL	
FASTENation, Inc.	Passaic , NJ	Dist. & Fabricator Of Hook & Loop Fasteners, 3M Dual Lock
Precision Plastics	Beltsville, MD	Custom Mfr. Hook & Loop Fasteners, Made To Specs., In-House Design Assistance
Alliance	Hot Springs, AR	Designer & Mfr. Of All Varieties Of Rubber Bands For All Applications Including Office, Home, Industry & Produce. Packaging,...
Brunner Manufacturing, Inc.	Mauston, WI	Special Cold Headed & Formed Products For All OEM & After Market Needs. Special Bolts, Drilled

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<u>Robbins Lightning, Inc.</u>	Maryville, MO	Pins, Threaded Studs,... Mfrs. Of A Complete Line Of Lightning Protection & Static Grounding Materials Which Comply With The Requirements Of Codes...
<u>Blair Co.</u>	Elk Grove Village, IL	
<u>Cable Markers Co., Inc.</u>	Lake Forest, CA	Identification Products, Wire Markers, Computer Printable Systems, Labels, Tags, Heat Shrink Sleeving, Serialization, Bar...
<u>Advanced Cable Ties, Inc.</u>	Gardner, MA	Mfg. & Specializing In Nylon, Stainless Steel, & Hook & Loop Cable Ties, Cable Tie Accessories, Cable Clamps, Cable Wraps,...
<u>Allan Zipper Mfg. Corp.</u>	Brooklyn, NY	Custom & Stock 4-Gauge Vinyl Bags With Zipper, Snaps; For Drapes, Garments, Curtains, Comforters, Textiles
<u>Adhesives & Tapes Industrial Supply</u>	Vista, CA	Adhesives, Sealants, Coatings, Encapsulants, Tapes & Application Equipment. Casting Resin, Acrylic, Anaerobic,...
<u>Avery Dennison, Fastener Div.</u>	Framingham, MA	Cable Tie Products For Wire Harnessing, Packaging, Secure Holding & Bundling Functions

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Textol Systems, Inc.	Carlstadt, NJ	Distributor & Fabricator Of Hook & Loop Products
Ribbon Webbing Corp.	Chicago, IL	Mfrs. Of Polypropylene, Nylon & Polyester Webbing, Also Hook & Loop, Gros Grain. Webbing For All Purposes, In All Colors &...
MULTI TRIM	New York, NY	Mfrs. & Dist. Of Full Line Of Industrial Sewing & Trimming Supplies In Any Colors & Styles, Hook & Loop Fasteners, Zippers,....
Converters Inc.	Huntingdon Valley, PA	
Hope Global	Cumberland, RI	Loop Attachment Strip For Automotive & Industrial Seat Builds
Quintana Industrial Supply, Inc.	Lawrence, MA	
U.S. Slide Fastener Corp.	Boston, MA	
Peters-De Laet, Inc.	South San Francisco, CA	
ATCO	Houston, TX	
Industrial Tape & Supply Co.	Marietta, GA	
Bead Industries, Inc.	Bridgeport, CT	
Rip 'N Grip Industries, Inc.	Palmdale, CA	

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[3M™ Scotchmate™ Reclosable Fastener SJ3418FR](#)

APPENDIX
EXHIBIT D

Page D1-D4

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

TENNIS RACQUET EQUIPPED
WITH A TENNIS BALL RETRIEVER

Alice H. Howe

Filed: 09/06/00

) Art Unit: 3711

)

) Serial No.: 09/655,743

)

) Docket No.: MPH 99-46

)

AFFIDAVIT UNDER 37CFR1.132

STATE OF WISCONSIN)
)
COUNTY OF LA CROSSE)

I, ALICE HOWE, being duly sworn, deposes and states as follows that:

1. I was granted an R.N. degree by St. Frances School of Nursing. I was employed as a Registered Nurse at the La Crosse Clinic from 1958 to 1969; at the University of La Crosse Health Center from 1970 to 1980; and at St. Frances Hospital from 1980 to 1995. I have been an avid tennis player and fan for more than half a century, having played tennis on tennis courts throughout the U.S.A., Mexico and Europe.

2. I devised the testing procedures used to test the efficacy of hook and loop type fasteners as reported in the Example of the captioned patent application.

3. I am also the applicant of the invention described and claimed in the above application.

4. I have read and am familiar with the Office Action of Paper No. 3, the claims as currently to be amended in the response to Paper No. 3 by my attorney, the cited references of Paper No. 3, and the rejection of claims 1-7, 9, 10 and 12 as unpatentable over 35USC103(a) over U.S. Pat. No. 4,834,393 (*Feldt*) or French Patent No. 2594037 (*Musslin*), and either in view of U.S. Pat. No. 5,077,870 (*Melbye et al*) and alleged

applicant's admission of prior art in the specification; and the rejection of claims 8, 11 and 13-15 as unpatentable over *Feldi*, or *Musslin*, and in view of *Melbye* and applicant's admission of the prior art in his specification and in further view of U.S. Patent cited No. 4,993,712 (*Urwin*).

5. Pursuant to the request of my patent attorney, a mushroom-type strip fastener, representative of U.S. Patent No. 5,077,870 (*Melbye*), was tested under identical testing procedures as reported in the Example of the captioned patent application to determine its ability to engage and lift ordinary tennis balls from the ground. Representatives of the manufacture and patent assignee of the U.S. Patent No. 5,077,870 (*Melbye*) indicated that the loop mushroom-type strip fasteners (Dual-lock) used in this test was fairly representative of the mushroom-type fasteners of U.S. Patent No. 5,077,870. In the test, a one-foot length of the mushroom-type strip fastener was attached by its own adhesive backing to the outer edge of the shoulder of a Wilson tennis racquet. Pursuant to the test, three of the most commonly used tennis balls, namely Wilson Championship tennis ball, Dunlop Tournament tennis ball, and Penn Medalist tennis ball were tested. In each test, ten attempts were made to engage and lift each ball by firmly contacting the face of the "Dual-lock" fastener material to the felt or nap of the tennis ball.

6. In all thirty attempts of paragraph 5 above, to lift the three different types of tennis balls off the ground with the mushroom-type strip fastener of U.S. Patent No. 5,077,870 (*Melbye*), all attempts were completely unsuccessful upon all of the tested tennis balls. The "Dual-lock" mushroom-type fastener of U.S. Patent No. 5,077,870 (*Melbye*) failed to adhere, stick or attach onto any of the felt surfaces of any tennis ball in any of the aforementioned 30 test attempts.

7. It is therefore concluded that the tested mushroom-type strip fastener of U.S. Patent No. 5,077,870 (*Melbye*), when attached to the edge of an ordinary tennis racquet, is totally ineffective for retrieving ordinary tennis balls off the ground upon tangential contact as prescribed by my amended claims.

8. The physical and functional properties of the *Melbye* mushroom-type fastener do not permit it to engagingly attach or adhere to the felt surface of a common tennis ball as evidenced by the test results reported herein.

9. The mushroom-type fastener of U.S. Patent No. 5,077,870 to *Melbye* cannot engage and lift a grounded tennis ball upon tangential contact as defined by the amended claims of the captioned application.

10. It is factually incorrect to conclude that *Melbye* U.S. Patent No. 5,077,870 at column 1, lines 15-23 discloses Velcro™ and ScotchMate™ are functional equivalents as hook-and-loop fasteners or that equivalency may be extended to cover the uniquely different pre-shrunk nylon monofilament hooks of the highly specific and narrowly defined characteristics as defined by the currently amended claims.

11. The mushroom-type fastener of U.S. Patent No. 5,077,870 to *Melbye* fails to meet the claimed requirements of a series of pre-shrunk nylon monofilament hooks of:

- a) an average height of at least 1.85 mm
- b) an average diameter of at least 8.25 mil
- c) an average hook width of at least 1.0 mm; and
- d) an average hook depth of at least 0.6 mm

12. United States Patent No. 5,077,870 to the *Melbye* patent discloses and claims "a mushroom-type hook strip" having an "array of upstanding stems" and "a mushroom head at an end of the stem" as shown in Figure 1 of the *Melbye* patent which is clearly different in physical and functional characteristics from the claimed preshrunk monofilament hooks as illustrated in Figure 5 of the captioned application.

13. The mushroom headed stem of U.S. Patent No. 5,077,870 to *Melbye* patent is completely different in physical structure and function from the claimed hooked configuration and characteristics of the claimed preshrunk monofilament hooks.

14. The *Melbye* mushroom hook fasteners are neither the actual nor functional equivalent of the monofilament hooks as characterized and defined by the currently

pending claims in the captioned application as verified with the testing results reported herein.

15. For comparison purposes to the mushroom-type fastener of U.S. Patent No. 5,077,870, a monofilament as defined in claims 4-15 of the captioned application, when tested pursuant to Example 1, provided the unexpectedly superior efficacy upon tangential contact onto all three types of grounded tennis balls, as has been reported in the Example of the captioned patent applicant.

16. The above comparative test results represent a fair comparison between the claimed preshrunk monofilaments of the captioned application and the mushroom-type fasteners of U.S. Patent No. 5,077,870.

17. Further deponeth sayeth naught.

Alice H. Howe
Alice H. Howe
Affiant

10/18/01
Date

STATE OF WISCONSIN)
) ss.
COUNTY OF LA CROSSE)

Personally came before me this 18th day of October, 2001,
the above-named Alice H. Howe to me
known to be the person who signed as Affiant who executed
the foregoing instrument and acknowledged the same.

[Signature]
Notary Public
State of Wisconsin

My commission expires May 8, 2005

Per Alice Howe 4/9/2002

She spoke with Wilson Ball Co., Chicago, Illinois, who advised her as follows:

Tennis Ball Standard of Identity:

- 1. Round**
- 2. Diameter of no more than 6.5 cm and no less than 6.3 cm**
- 3. Made of rubber core with two halves glued together to make the sphere.**
- 4. Injected with air pressure (12 psi)**
- 5. Must be covered with felt; yellow or green**

(they also number the balls [1, 2, 3 or 4] for players' use and identity; and they stamp the Wilson brand name on the ball)

THE MAKING OF A TENNIS BALL

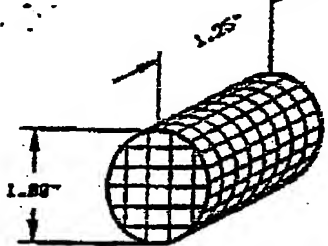
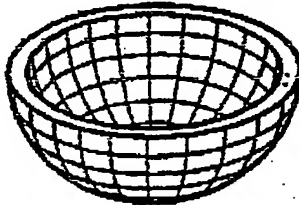
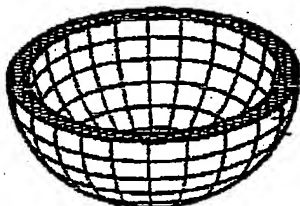
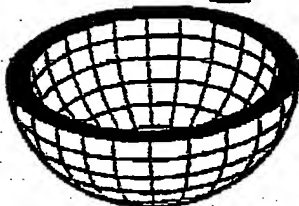
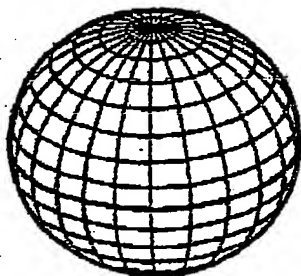
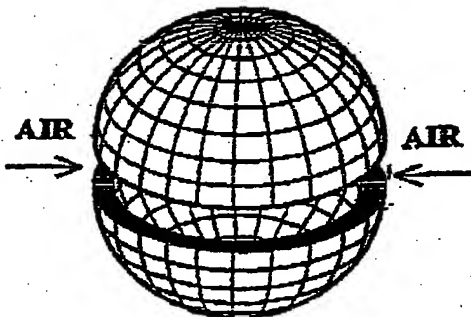
- Have you ever wondered how a tennis ball is made?
 - Or, why there are so many different types of tennis balls?
 - Have you ever wondered how a tennis ball got it's fuzzy, yellow cover?
- All of these questions, and more, will be answered if you continue to read on.

FIRST A LITTLE HISTORY:

For many years, little effort was made to standardize the construction, and performance of tennis balls. But now, the International Tennis Federation (ITF) not only specifies the size, weight, and construction of the ball, but they also specify the hardness, and resiliency (or bounce characteristics) of the ball. The current ITF specifications are as follows:

	Size (inches)	Weight (grams)	Construction	Hardness (inches)	Resiliency (inches)
Maximum	2.700	58.5	Fabric cover with stitchless seams	.290	58.0
Minimum	2.575	56.7		.220	53.0

Historians believe that tennis originated from the Greek, and Roman Handball Game. The ball for this game consisted of a tightly compressed cloth, covered with a lighter layer of cloth, similar to today's tennis ball. Next, came balls with wool cores, and a hand stitched leather cover. These balls were more like soft baseballs. Occasionally, these balls were manufactured with a feather core. These balls did not possess much bounce, and were significantly heavier than today's ball. In 1873, the game "Sphairistike", or Lawn Tennis was invented, and played with a lightweight, uncovered rubber ball. In England, Mr. John Heathcote, who was a real champion of tennis as we know it, found the uncovered ball too light, especially during windy play conditions. In response to this, he and his wife developed the familiar pattern of two dogbone-shaped felt panels, which would completely envelope the rubber core. For these early samples, the felt cover panels were hand stitched onto the rubber core, similar to a baseball. In the late 1920's, special adhesives were developed for attaching the felt cover to the core, thereby eliminating the stitched cover. This ball is what we now think of as a tennis ball.

**RUBBER SLUG****HALF SHELL****HALF SHELL WITH
BUFFED SEAM****HALF SHELL WITH
SEAM ADHESIVE****BONDED CORE****HOW A TENNIS BALL IS MADE :**

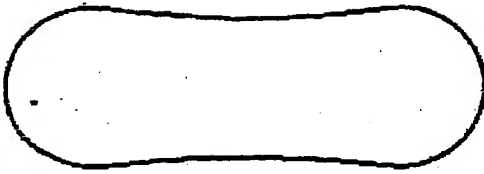
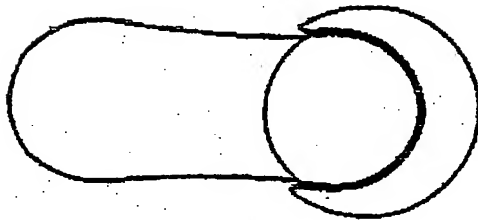
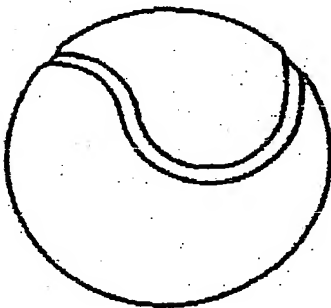
STEP #1 – Making the Pressurized Core : When Wilson Sporting Goods manufactures a tennis ball, they begin with the finest rubber, and premium quality ingredients available. These ingredients are first mixed with precision in a large rubber mixer, to produce a superior rubber compound. Next this compound is extruded, and cut into cylindrical - shaped slugs, measuring about 1" in diameter, and 1.25" long.

Each slug is then placed into a press, where it is molded, under heat, and pressure, to form a half shell, which will become one half of a finished core.

When the half shells are removed from the press, each hemisphere has a thin web of rubber around the entire perimeter of the half shell, which is called flash. This flash is removed in a precision stamping press, which trims away the unwanted flash. The seams of these trimmed half shells are then buffed, using a sandpaper buffing disc, and then coated with a special, high - strength seam adhesive.

An equal number of these half shells are then carefully placed into a special press, so that each pair of half shells have their buffed, and cemented seams, facing each other. Just before the press closes, a precise amount of air pressure (approx. 15 psi) is introduced into the small chamber between the mated half shells. Once the pressure stabilizes within the chamber, the press closes completely, thereby, trapping the air pressure within the core. This air pressure provides the tennis ball it's lively bounce characteristics. Under heat and pressure the two half shells are bonded, or vulcanized, together. We now have a pressurized tennis ball core.

These cores are then tumbled in a large, sandpaper - lined drum to roughen the surface of the core, in preparation for the application of core coating adhesive. These abraded cores are then dipped into a special core coating adhesive, and dried to the proper consistency, so that the adhesive becomes tacky, and ready to receive a felt cover. This adhesive will provide a strong bond between the core, and cover.

**FELT DOGBONE****BALL COVERING****FINISHED BALL****LOGOED BALL**

STEP #2 – Preparing the Felt Dogbones: The other piece of the puzzle is the felt. Felt is a fabric composed of primarily high grade wool, and nylon. It arrives at the Wilson Factory in large rolls, at which time it is checked for thickness, weight, color, and wear properties before processing into dogbones.

The first step in preparing the felt is to apply adhesive to the backside of the felt. This is accomplished in a large machine which coats the entire roll of felt, in a continuous process. This machine also dries the felt sufficiently so that the felt may be re-rolled at the end of the machine. This adhesive will make sure the felt does not separate from the core during play.

Next, these adhesive coated rolls of felt are fed into a machine which cuts the felt into the familiar dogbone shaped panels. The dogbones are then stacked into clamping fixtures, and squeezed in compression, for the next operation. Two dogbones are required for each finished ball.

The packs of felt dogbones, held in the clamping fixture, are then dipped into a tank containing a very special adhesive, which coats only the edges of the felt dogbones. This adhesive will eventually become the familiar white, curvy seam of the tennis ball. After drying to the proper degree, the felt dogbones are then "picked" from the dipped packs, and placed into a ball covering machine, where they meet one of the adhesive coated rubber cores, from Step #1. The ball covering machine precisely places the two felt dogbones onto the rubber core.

This is not yet a finished tennis ball. The covered balls are then placed into a final molding press, where heat, and pressure bond the covers to the core, and also form the familiar white seam of the ball. When the balls leave this final molding process, the felt on the balls is in an extremely compressed state, from the heat and pressure of the press. The felt is fluffed back to it's original form in a large industrial dryer. Initially, steam is introduced into the fluffer to loosen up the felt fibers, and allow the fibers to spring back to their original position. Finally, the fluffer dries the balls using hot, circulating air, similar to a clothes dryer at home.



We now have a finished tennis ball. These balls are next inspected for conformance to Wilson's rigid quality standards, and if found acceptable, will be stamped with the familiar "Wilson" logo. Just before the application of the logo, each ball must pass a compression test, which assures that the ball has the proper air pressure.

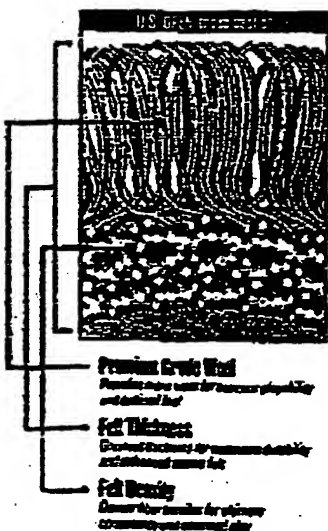
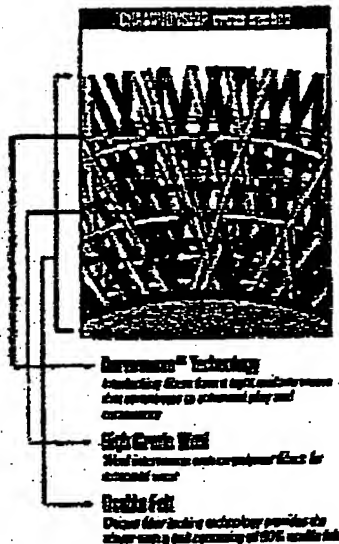
The finished balls are then placed into recyclable plastic cans, pressurized to the proper can pressure, and sealed with an aluminum, EZ Open lid. Each can is tested to insure that it is properly pressurized, and sealed. Lastly, a plastic overcap, and label are placed on the cans, and the cans are placed into cardboard boxes, ready for shipment to our customers.

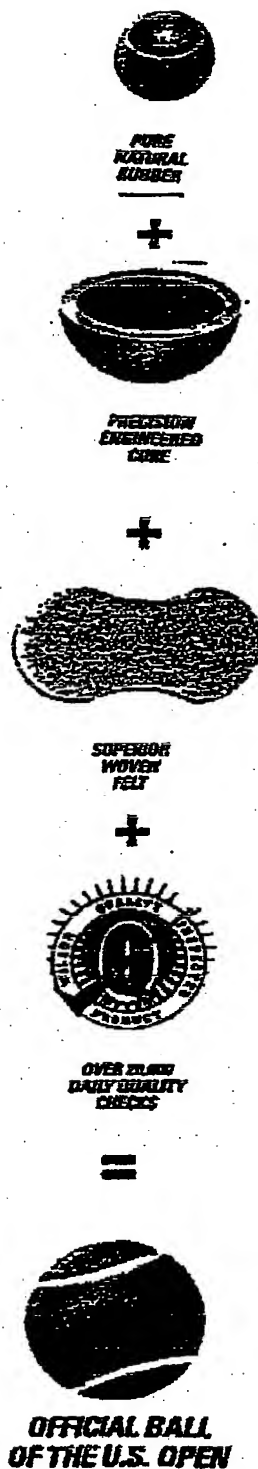
TYPES OF TENNIS BALLS :

You may still be wondering why there are so many different types of tennis balls. There are two major categories of tennis balls — Pressurized, and Pressureless. The majority of tennis balls sold today are Pressurized Products. These products are packaged in a specially designed pressurized container, which keeps the balls fresh for years, until the can is opened, and the seal is broken. Pressurized tennis balls are more lively than Pressure-less balls, and feel lighter off the racket.

Pressureless tennis balls are manufactured with a thicker rubber wall, and with no internal ball pressure, which makes them play slower, and feel heavier off the racket. On the positive side, because there is no internal air pressure to lose, Pressureless tennis balls maintain their bounce characteristics better than pressurized balls, over the life of the ball.

Two other tennis ball products are the High Altitude Ball, and the Grass Court Ball. These two products are specially designed for specific playing conditions. The High Altitude Ball is made with a slightly lower air pressure than the Standard Wilson Ball, to compensate for the slightly lower barometric pressures found at altitudes above 3,500 feet. This change insures that the High Altitude Balls bounce correctly at higher altitudes. The Grass Court Ball features specially treated white felt that is ideal for grass court play.





Tennis balls are also categorized by the type of felt used to produce the balls. The first type of felt, called woven, is typically made from a combination of wool, and nylon fibers, woven together in a large textile loom. The woven fabric is subjected to a large number of secondary operations, which remove the woven pattern, and provide the familiar "felt" look of a tennis ball. This type of felt is used on the Wilson U.S. Open Products.

Duraweave Felt was developed by Wilson, using a high grade wool that is uniquely interlocked with copolymer fibers to form a tight uniform weave. This construction provides a long lasting felt, which enhances the playing characteristics, and consistency of the ball. This type of felt is used on the Wilson Championship Products.

Each of the felts described above support two different levels of play – Extra Duty and Regular Duty. Extra Duty Felt is designed for play on abrasive surfaces where the fibers must withstand the shearing, and cutting action of abrasive courts. This felt does not normally fluff excessively, although high humidity, or hitting the ball with a great deal of spin may cause Extra Duty Felt to fluff more than normal.

Regular Duty Felt is designed for soft, smoother court surfaces, and indoor courts. The increased moisture of clay, or grass courts, and the high level of static electricity found in indoor courts will cause the felt to fluff more than normal. In addition, smooth court surfaces will pull, and tug at a felt (rather than the shearing, and cutting action associated with abrasive courts), causing more fluff on the felt. Therefore, it is crucial that Regular Duty Felt be designed to be highly resistant to fluffing.

So that is the story of why there are so many different types of tennis balls, and how they get their fuzzy covers. The yellow colored felt was introduced in the early '70's to improve the visibility for the players and the TV audience. From the finest raw materials, highest quality felts, and meticulous control of manufacturing processes, comes the "Wilson U.S. Open Ball... the Tennis Ball as Tough as the Tournament".

TENNIS BALLS FUN FACTS

Wilson is rated as the best playing ball in tennis by over four hundred top tennis players.

THE BEST PLAYERS PICK WILSON AS THE BEST BALL!

Wilson is the ball purchased most often by the best tennis players.

Wilson is the only ball used at all USTA National Championships.

Wilson is the only ball used by the WTA-The Women's Tennis Association

Wilson is the official ball of the US Open since 1979.

Wilson tennis balls are sold throughout the world including France, Germany, England, Japan, Singapore, Hong Kong and Latin American countries.

With the consistent quality, innovation and performance Wilson delivers, it has become the standard of play for an industry.

Wilson, the Number One ball

PUTTING IT ALL TOGETHER

Wilson Tennis Ball Manufacturing Fact Sheet

The first step in making a tennis ball is to prepare and mix together the ingredients that make the ball's core. The core of a tennis ball includes approximately 14 different materials. #1 is natural rubber. The tennis core stock undergoes extensive quality control testing throughout the blending process to ensure consistency.

This rubber is then made into thick sheets, milled, and then a machine punches out "slugs" which are cylindrical shaped chunks of rubber that are all the same size and shape. This "slug" is then molded into a perfectly shaped hemisphere under controlled curing conditions of time, temperature and pressure (referred to as first cure). These curing conditions are continuously monitored in order for the half shell to meet our specific requirements.

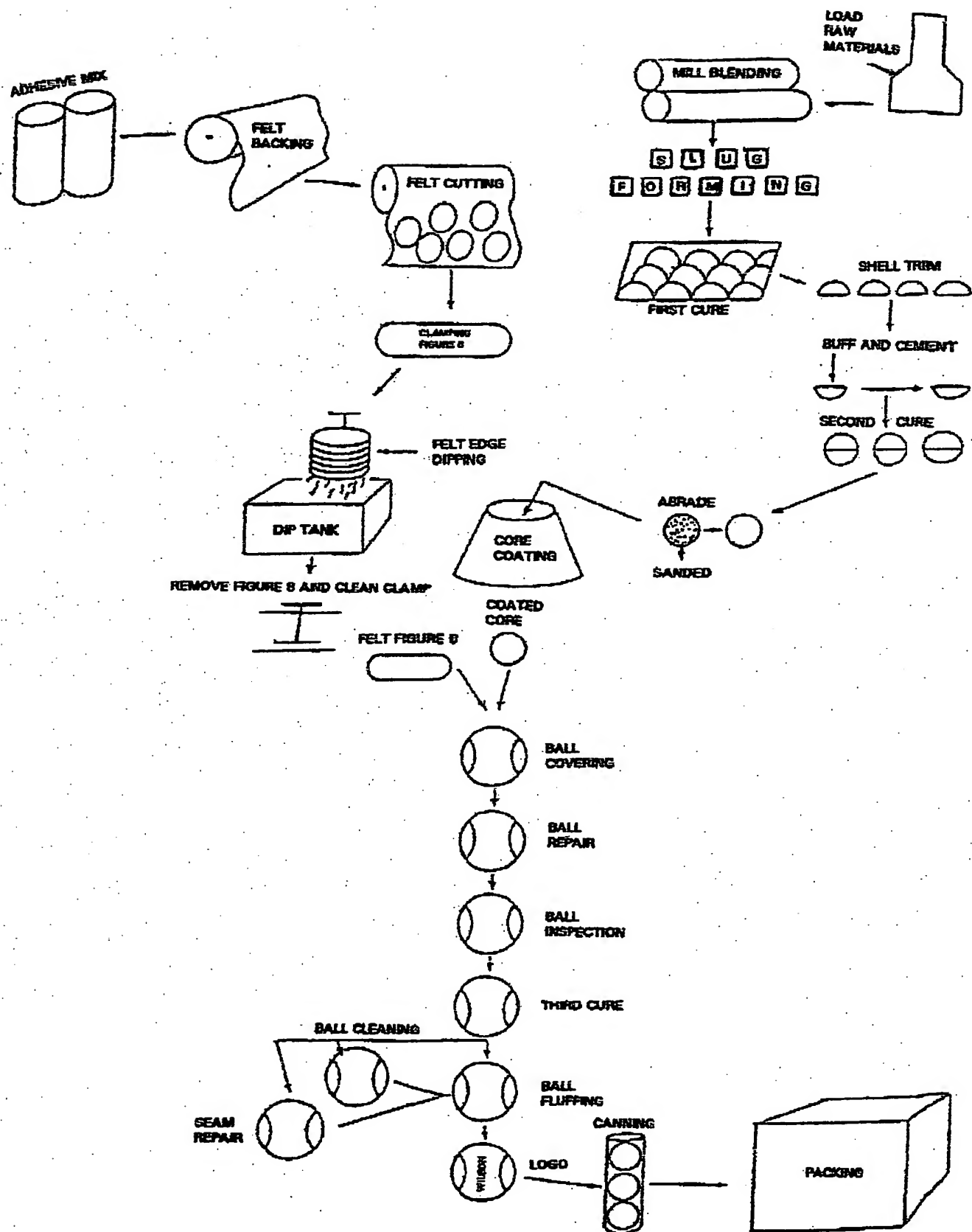
Each half shell is then buffed to even true the edges and prepare them for the adhesive that is used to bond the two halves together. The half shells are loaded into the top and bottom of a machine that looks like a waffle iron or an egg carton and they are cured here under controlled time, temperature and pressure. The inner chamber is pressurized so that the air trapped inside as the halves are fused together is at the same pressure (referred to as second cure). The adhesive on the half shell edges fuses the two half shells together for a tight seal. The pressure of each of our second cure presses are constantly monitored to ensure consistency of the core.

QC will then sample cores to test them for weight, size, rebound and deflection. The surface of the cores will then be abraded (roughened) in preparation for adhesion of the felt strips. The core is then dipped in a high quality adhesive compound and oven dried in preparation for the cover application.

A mix of specifically designed fibers are processed together to form rolls of felt material. These rolls are then "back coated" with a specially designed adhesive. Several rolls of back coated felt are fed into an automated high-speed cutting machine which punches out the figure 8 shaped pieces of felt and packs them together into a bundle. The felt packs are then dipped into a vat of white seam adhesive which coats only the edges of the felt. The felt packs are dried and the figure eights are then separated. The back coated figure eights are now inserted into the felt covering machine and placed on the core. At this point, the product starts to resemble a tennis ball. The final cure insures a perfect bond between the ball and cover. Under conditions of time, temperature and pressure, the felt is bonded to the core and the seam adhesive is cured (referred to as third cure). Extensive quality control checks are conducted throughout this entire process to assure a high quality finished product.

After third cure, the balls are steam fluffed to raise the nap on the felt, giving the balls their fuzzy appearance. After the fluffing process, the balls are visually inspected for cosmetic quality. Next comes the stamping of the company logo and number. The logo operation is also systematically controlled in order to maintain the proper positioning. QC will then sample finished balls and test them to assure that they meet USTA and player specifications. Three balls are sealed in air tight pressurized cans. The pressurized can keeps the ball pressurized for excellent bounce and playability.

FLOW CHART



USTA TENNIS BALL SPECIFICATIONS

APPENDIX

RULE 3

BALL - SIZE, WEIGHT AND BOUND

¹ The ball shall have a uniform outer surface and shall be white or yellow in color. If there are any seams they shall be stitchless. The ball shall be more than two and a half inches (6.35 cm) and less than two and five-eighths inches (6.67 cm) in diameter, and more than two ounces (56.7 grams) and less than two and one-sixteenth ounces (58.5 grams) in weight. The ball shall have a bound of more than 53 inches (135 cm) and less than 58 inches (147 cm) when dropped 100 inches (254 cm) upon a concrete base. The ball shall have a forward deformation of more than .220 of an inch (.56 cm) and less than .290 of an inch (.74 cm) and a return deformation of more than .350 of an inch (.89 cm) and less than .425 of an inch (1.08 cm) at 18 lb. (8.165 kg) load. The two deformation figures shall be the averages of three individual readings along three axes of the ball and two individual readings shall differ by more than .030 of an inch (.08 cm) in each case. All tests for bound, size and deformation shall be made in accordance with the regulations in the Appendix hereto.

¹ The Official USTA Yearbook and Tennis Guide With The Official Rules, H.O. Zimmerman, Inc., 156 Board St., Lynn, MA, 01901, 1977, pp. 415.

TENNIS BALLS

DIFFERENCES BETWEEN PRESSURIZED & PRESSURLESS TENNIS BALLS

1. Pressurized balls have traditionally been the ball of choice in this country. This preference for pressurized is based on the following:
 - They are typically more lively than pressureless and feel lighter off the racquet.
 - Pressurized balls typically sound a little crisper when hit.
 - Pressurized balls (in this country) are very inexpensive. In 1930, a can of 3 Wilson tennis balls could be purchased for \$1.50 in a Sears & Roebuck catalogue. Over sixty (60) years later, that same can of balls may be purchased for under \$2.00. With this low price, a large majority of players open a new can of tennis balls at every outing.
2. Pressurized balls are packaged in specially designed pressurized containers which are capable of keeping the balls fresh for years in storage. However, once the seal of the can is broken and the pressure is released, the balls will begin to lose air and, therefore, liveliness. The rate at which this occurs is a function of the following:

TEMPERATURE: The higher the temperature, the faster the balls will lose air (liveliness). For example, at room temperature a ball would typically lose approximately 2 psi of air pressure in a 2-month time period. This would result in a 2 inch loss of rebound height (liveliness) which a good player could potentially notice.

At elevated temperatures, such as 100° F, this loss of air pressure would occur much faster - probably 2 weeks instead of 2 months. For this reason, it is not a good idea to store opened tennis balls in the trunk of your car during the hot summer months. We recommend storing the balls at a cool temperature, even a refrigerator, if you have the room.

USAGE: Although we don't have any hard data to substantiate this claim, we do believe balls lose air much faster when they are used in play. The impact with the racket and court during play heat up the balls, resulting in a higher internal pressure and, consequently, a higher permeation rate.

3. In sharp contract to the above, pressureless tennis balls have no internal pressure inside the core. Therefore, they will not lose liveliness over time. This provides more consistent performance over time. The most frequent complaint about pressureless balls is that they are slow playing and feel heavy on the racket. The Wilson "advantage" tennis ball is specially formulated to eliminate this heavy feeling on the racquet. Additionally, its slightly slower playing characteristics make it ideal as a practice ball since it provides a little extra time to prepare for shots. Pressureless balls are ideal for ball baskets since they don't lose air pressure (liveliness) over time. In areas of the world where tennis balls cost 2-3 times more than in the US, pressureless balls enjoy a significant market share. They represent an excellent value to the cost conscious consumer.

EFFECTS OF TEMPERATURE ON THE REBOUND HEIGHT OF A TENNIS BALL

ITEMS TESTED

6-Wilson T1001 Championship Extra Duty tennis balls

TEST PROCEDURE

- 1. Balls were kept overnight at room temperature and measured for 100" rebound height the next day.**
- 2. Balls were placed in a refrigerator overnight at a temperature of 38°F. The next morning, one ball at a time was removed from the refrigerator and measured for rebound height as quickly as possible.**
- 3. Balls were placed in an oven at 100°F for 6 hours. It is important to note that the balls were placed inside a small cardboard box to prevent the hot oven air blast from impinging directly on the balls. After 6 hours, one ball at a time was removed from the oven and measured for rebound height as quickly as possible.**
- 4. Step #3 was repeated at an oven temperature of 130°F.**

TEST RESULTS

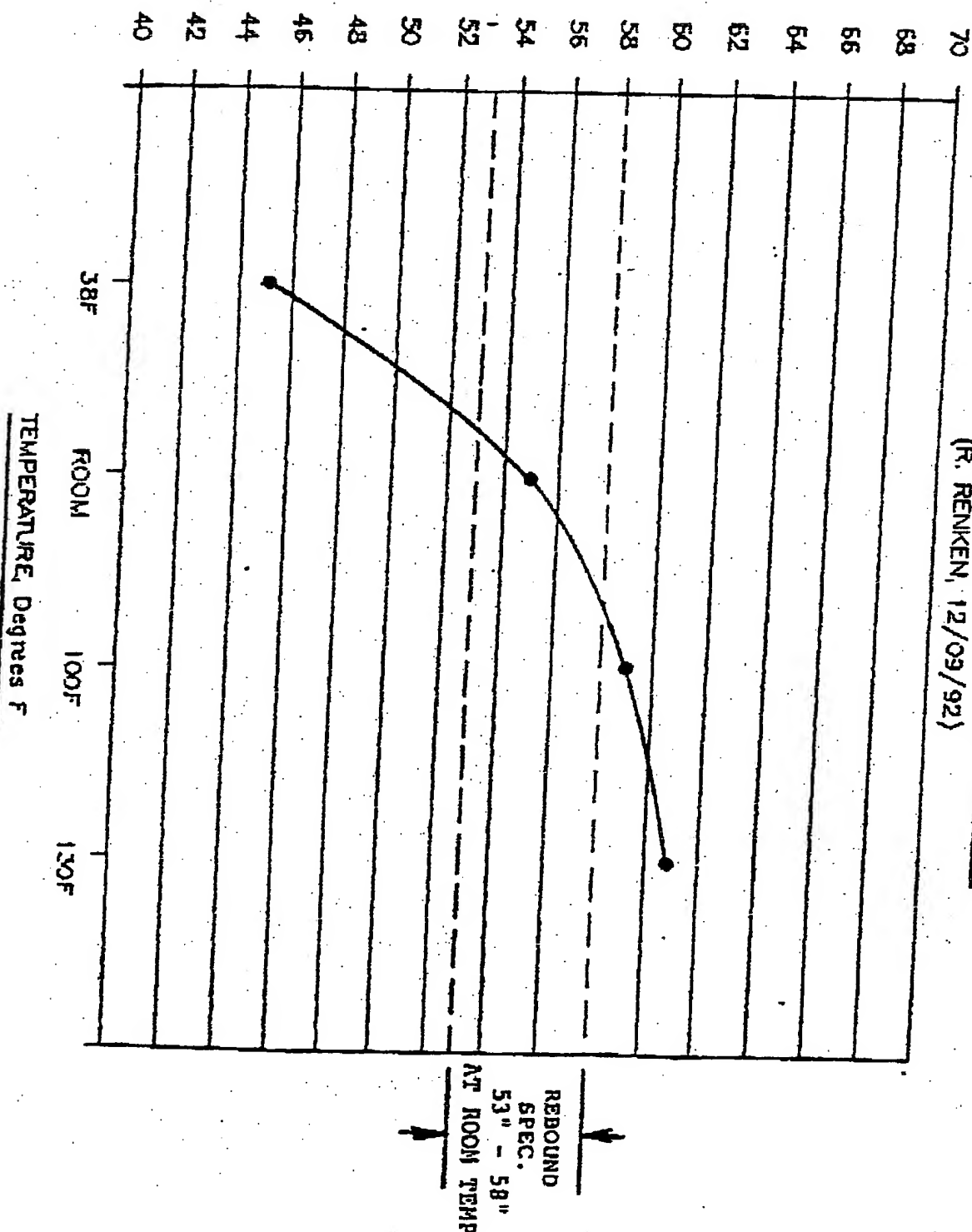
The results on the 6 tennis balls tested were averaged and plotted as a function of temperature. The results may be found in Graph 1 attached.

DISCUSSION OF RESULTS

- 1. Temperature was found to have a strong influence on rebound height.**
- 2. Rebound height was most effected at the lower temperature of 38°F. On average, the balls lost 10 inches of rebound in going from 72°F to 38°F. It is important to note that if the balls at low temperatures were used in play, they would quickly increase in rebound height because of the warming of the balls due to flexing of the core.**
- 3. The balls quickly fell out of the rebound specifications of 53" - 58" when exposed to the 3 test temperatures.**

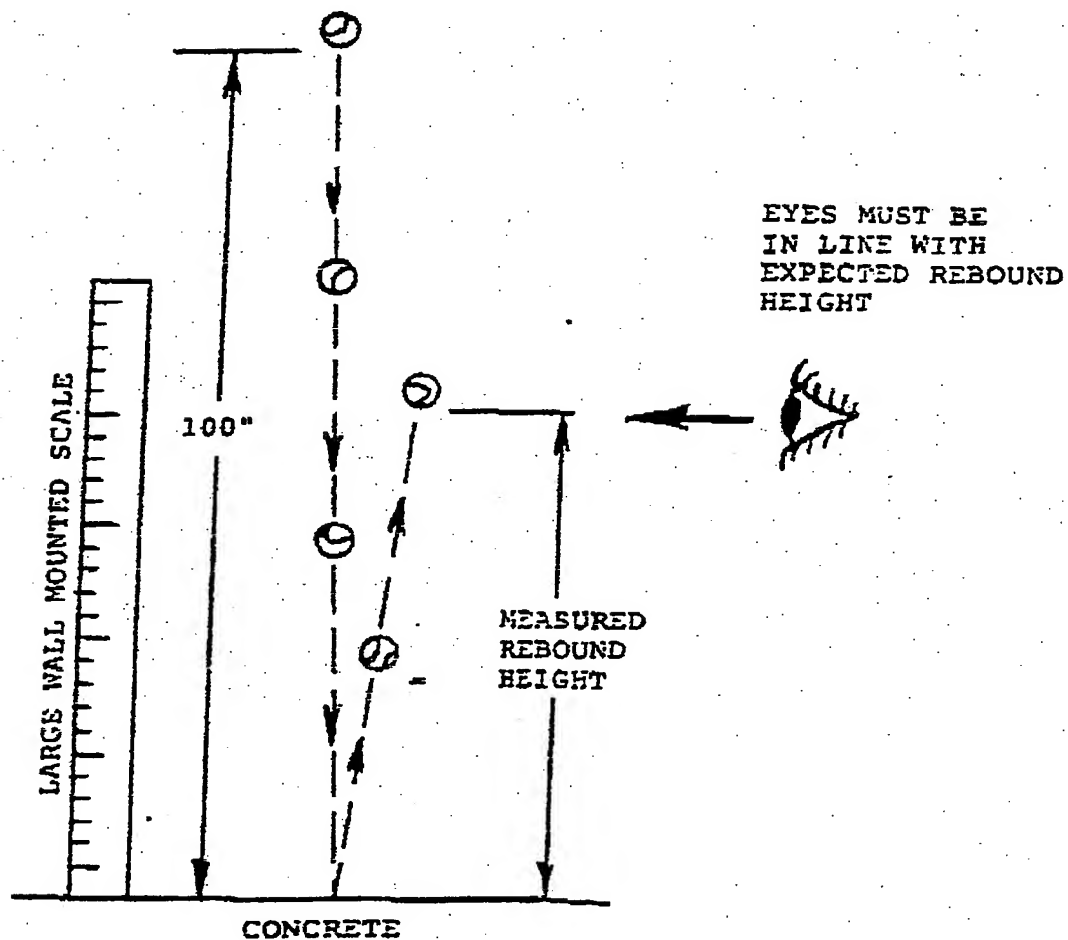
REBOUND FROM 100" DROP, Inches**GRAPH 1****REBOUND HT VS TEMPERATURE**

(R. RENKEN, 12/09/92)



100" REBOUND HEIGHT TEST

1. Balls were dropped from 100" (as measured from the bottom of the ball) onto a solid base, preferably concrete or granite.
2. Rebound height is measured to the bottom of the ball using a large graduated scale mounted behind the ball.
3. Care must be taken to assure that the eyes of the tester are in line with the approximate rebound height of the ball.
4. Three readings must be taken for each ball, and the average of the three is recorded as the rebound height.



PERMEABILITY OF TENNIS BALL CORES

The can is pressurized (not vacuum) with approximately 12 LB/IN² pressure to maintain the pressure in the ball. Once the can is "popped", and pressure is released, the balls will lose air pressure at a slow rate, similar to a car tire losing air. Below is a test report showing the change in "Rebound Height" and "Deformation" as a function of time (or days out of the can). As you will notice, the balls lose rebound height (bounce) and become softer. The air pressure leaks through the microscopic pores in the wall of the rubber core.

PERMEABILITY TEST OF TENNIS BALL CORES

ITEMS TESTED:

Twelve (12) Wilson Extra Duty tennis balls made with the following compounds:

>
>
>

Confidential

TEST PROCEDURE

Each group of balls were tested initially right out of the can for rebound and deformation. The balls were then placed in the lab conditioner at the standard test conditions of 68°F and 60% Relative Humidity. The balls were then re-tested every two (2) days for three (3) weeks. After 27 days, the balls were re-tested every seven (7) days. After 41 days the balls were re-tested every thirty (30) days. The balls were out of the can for a total of 196 days when the test was discontinued.

TEST RESULTS & CONCLUSIONS

The following table lists the rebound and deformation mean and standard deviation for the various compounds over a number of days out of the can:

This data has been plotted and curve fitted by computer using linear regression formula. The coefficient of determination (R^2) and the individual predication equations are given in the following table:

REBOUND		DEFORMATION	
R^2	$\hat{Y} = A + Bx$	R^2	$\hat{Y} = A + Bx$
0.948	$Y = 55.81 \pm 0.034x$	0.984	$Y = 0.2731 + 0.00031x$
0.975	$Y = 55.31 \pm 0.032x$	0.979	$Y = 0.2371 + 0.00028x$
0.969	$Y = 55.06 \pm 0.036x$	0.984	$Y = 0.2320 + 0.00028x$
0.972	$Y = 56.36 \pm 0.038x$	0.974	$Y = 0.2393 + 0.00026x$

What happens to the rebound of tennis balls once they are removed from the pressurized can?

- > The rebound of all tennis balls decreases over time once they are removed from the can; this is due to pressure loss. The rebound loss, however, is only 0.032" to 0.038" a day.

- Based on a 5" difference between the 58" upper spec and 53" lower spec for rebound, it would take approximately 131 to 156 days for these balls to lose 5" in rebound at 68°F and 60% Relative Humidity.
- The rate of rebound loss at 68°F and 60% Relative Humidity varies from compound to compound. Based on the slopes of these lines, the compounds can be ranked in order of least amount of loss in rebound:

- Least 1.
2. *Confidential*
3.
Most 4.

What happens to the deformation of tennis balls once they are removed from the pressurized can?

- All tennis balls soften over time once they are removed from the can; this is due to pressure loss. The amount of softening, however, is only 0.00026" to 0.00031" a day.
- Based on a 0.060" range for the deformation specifications of 0.220" to 0.280", it would take 194 to 231 days for these balls to soften 0.060" at 68°F and 60% Relative Humidity.
- Based on the slope of the linear regression lines, the compounds may be ranked in order of least amount of softening at 68°F and 60% Relative Humidity:

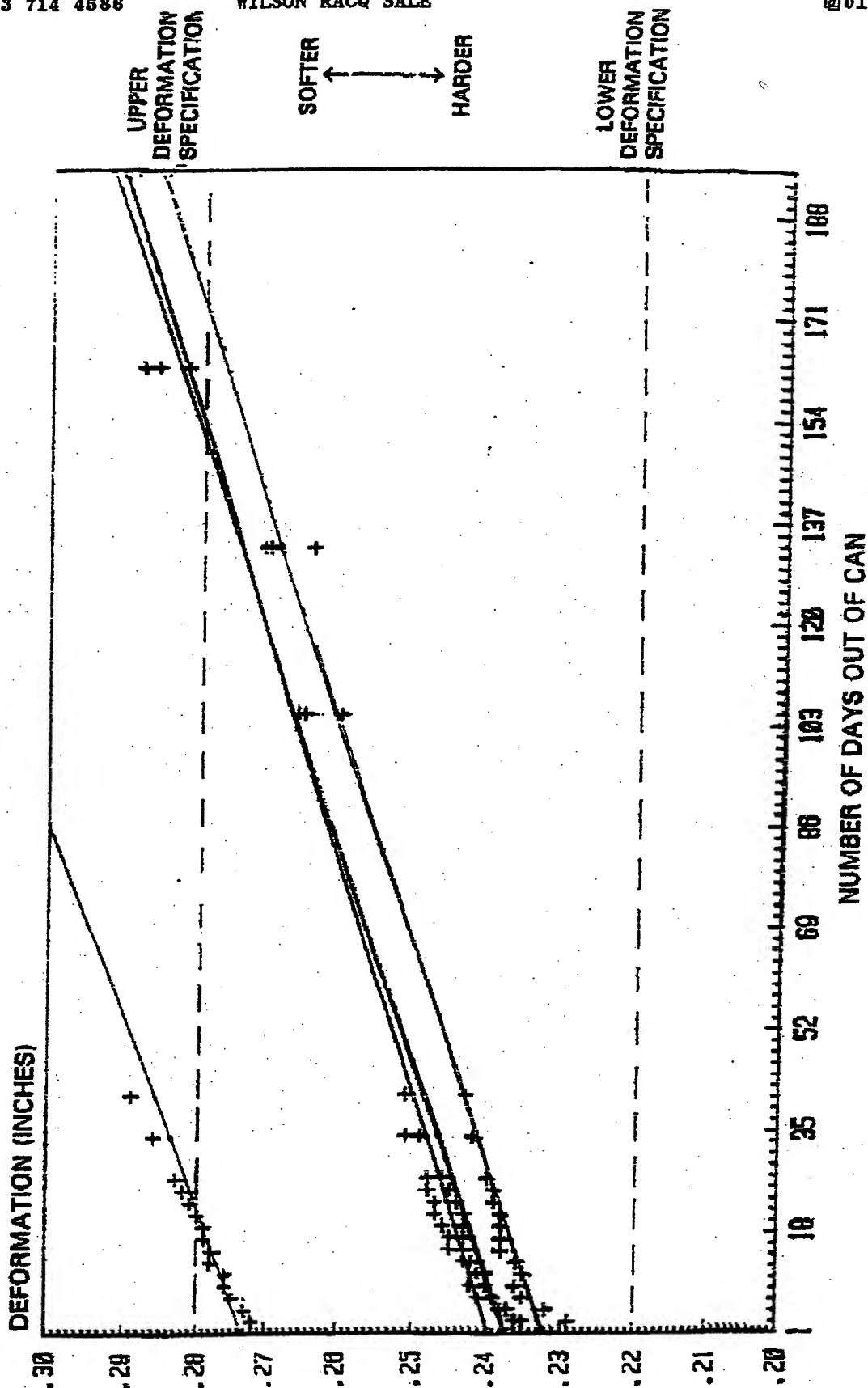
- Least 1.
2. *Confidential*
3.
Most 4.

SUMMARY

It is important to note the initial rebound and deformation of each compound. Compounds that have a rebound near the upper limit (58.0") will remain "in spec" longer than balls that are near the median (55.5") or the lower limit (53.0"). The same discussion applies to deformation; balls that are near the "hard" side of the specification (0.220") will remain "in spec" longer than balls that are nearer the specification median (0.250").

This test does not accurately measure the life of tennis balls because, in reality, balls are taken out of the can, played and then allowed to sit in non-pressurized cans at various temperatures. The actual play time and amount of hitting will accelerate the changes in rebound and deformation. At best, this test can be used to determine how long a tennis ball is playable once the can has lost its pressure.

LEAKAGE TEST - 68°F (LINEAR REGRESSION)



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SECOND EDITION

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Noah Webster

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PRACTICAL BUSINESS MATHEMATICS, ABBREVIATIONS, TABLES OF WEIGHTS AND MEASURES, SIGNS AND
SYMBOLS, AND FORMS OF ADDRESS

ILLUSTRATED THROUGHOUT

Dorset & Baber

xii
xiii
129
128
131
132
135
136
41
45
50
52
57
15

felicitate

made very happy. [Obs.]
 -felicitated, *pt.*, *pp.*; felicitat-
 -felicitatus, *pp.* of *felicitare*, to
 from *felis* (-*icis*), happy.]

happy. [Rare.]
 -felicitate, to wish joy or pleasure
 -felicitate, to wish joy or pleasure
 -felicitate, to wish joy or pleasure

congratulation.
 -felicitate, suitable to the occasion;
 -felicitate, apt and to the point; as, a

the knack of appropriate and
 -felicitate, style, etc.
 -felicitate, as, a felicitous occur-

timely, apropos, successful
 -felicitate, in a felicitous manner;
 -felicitate, the state or condition of

-felicit-*ties*, [ME. *felicitates*;
 from L. *felicitas*, happiness, from

happy.]
 -felicitate, perfect content and comfort;
 -felicitate, after this life to attain ever-

and felicity.—Common Prayer.
 -felicitate, which produces happiness or
 -felicitate, sources of satisfaction; as, the

met life.
 -felicitate, can genius attain than
 -felicitate, purified intellectual pleas-

—Johnson.
 -felicitate, appropriate and pleasing ex-
 -felicitate, pressing, speaking, painting, etc.

—Johnson.
 -felicitate, session or thought
 -felicitate, belonging to the cat fam-

from L. *felis*, properly *felis*, a cat,
 -felicitate, of the cat kind, a family of

incisor teeth are equal; the
 -felicitate, and the large canine in either

sharp, and these the can-
 -felicitate, incisor teeth, work against each

cutting flesh; the claws
 -felicitate, retractile. This family in-

cat, wildcat, lion, tiger,
 -felicitate, cat, panther, cheetah,

leopard, ocelot, etc.
 -felicitate, from *felis*, *felis*, a cat.]

of the genus *Felis* or family
 -felicitate, habits.

(a) shy; cruel; treacherous;
 (b) graceful in a sleek way;
 -felicitate, of the family *Felidae*.

quality of being feline.
 -felicitate, *felis*, a cat.] the type genus

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 -felicitate, *felis*, a cat.] the type genus

felt

fellowship, specifically to Christian fellow-
 ship; to unite with in doctrine and discipline.
 -fel'low-ship, *v.i.* to become associated with

others, especially in the same church.
 -fel'low trav'el-er, a nonmember who supports
 or approves the cause of a party, especially
 the Communist Party.

-fel'ly, *adv.* [ME. *felly*, *fellich*, fiercely;
 -fel'ly, *adv.* [ME. *felly*, *fellich*, fiercely;
 -fel'ly, *adv.* [ME. *felly*, *fellich*, fiercely;

barbarously.
 -fel'ly, *adv.* [ME. *fel'lies*, *fel'lies*, [ME.
 -fel'ly, *adv.* [ME. *fel'lies*, *fel'lies*, [ME.

-fel'ly, *adv.* [ME. *fel'lies*, *fel'lies*, [ME.
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The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 21



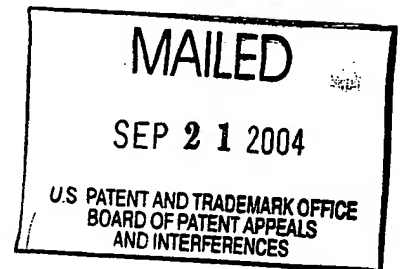
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ALICE H. HOWE

Appeal No. 2004-2020
Application 09/655,743

ON BRIEF



Before FRANKFORT, STAAB, and McQUADE, Administrative Patent Judges.

FRANKFORT, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1 through 15, all of the claims pending in this application.

Appellant's invention is directed to a tennis racket and ball retrieving attachment affixed to a shoulder region¹ of the racket for engaging and lifting a grounded tennis ball upon tangential contact of the retrieving attachment member with the outer surface of the ball, and to a method of using such a combination racket and ball retrieving attachment to permit a tennis player to merely extend the tennis racket to retrieve tennis balls from the court without the need to bend down to reach the balls by hand. More particularly, as noted on page 5 of the specification, appellant uses an industrial hook fastener material sold and distributed by the 3M Company, under their Scotchmate® brand of hook-and-loop fasteners, as the ball retrieving attachment member placed on a shoulder portion of the racket. The paragraph spanning pages 7 and 8 of the specification more specifically notes that it is the hook portion of Scotchmate® industrial fastener SJ3526 that is used in the present invention. The specification indicates and test results therein appear to demonstrate that when attached to a tennis racket shoulder portion and used as a ball retriever, the above-

¹As indicated on page 7 of appellant's specification, the outer perimeter of the head (6) of the tennis racket extending clockwise from about the eight o'clock to the four o'clock position is defined as the "shoulder region" of the racket.

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Application 09/655,743

noted Scotchmate® hook material exhibits unexpectedly superior efficacy in retrieving grounded tennis balls of all major tennis ball brands upon tangential contact therewith. Independent claims 1 and 10 are representative of the subject matter on appeal and a copy of those claims can be found in Exhibit A of appellant's brief.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Feldi	4,834,393	May. 30, 1989
Urwin	4,993,712	Feb. 19, 1991
Melbye et al. (Melbye)	5,077,870	Jan. 7, 1992
Musslin	2,594,037	Aug. 14, 1987
(French reference)		

In addition to the above-noted prior art references, the examiner also relies upon what has been characterized as appellant's admitted prior art (hereinafter AAPA) found on pages 5-10 of the specification relating to Scotchmate® brand of hook-and-loop fasteners and, more specifically, to the hook fastener portion of Scotchmate® industrial fastener SJ3526 and the physical hook characteristics thereof.

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Application 09/655,743

Claims 1 through 7, 9, 10 and 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Feldi or Musslin either one taken in view of Melbye and AAPA.

Claims 8, 11 and 13 through 15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Feldi, Musslin, Melbye and AAPA as applied above and further in view of Urwin.

Rather than reiterate the conflicting viewpoints advanced by the examiner and appellant regarding the above-noted rejections, we refer to the Office action mailed June 19, 2001 (Paper No. 3) and the examiner's answer (Paper No. 15, mailed December 27, 2002) for the examiner's reasoning in support of the rejections and to appellant's brief (Paper No. 14, filed October 11, 2002) and reply brief (Paper No. 17, filed May 5, 2003) for the arguments thereagainst.

OPINION

Having carefully reviewed the obviousness issues raised in this appeal in light of the record before us, we have come to the conclusion that the examiner's rejections under 35 U.S.C. § 103

will not be sustained. Our reasons in support of this determination follow.

Concerning the examiner's rejection of claims 1 through 7, 9, 10 and 12 under 35 U.S.C. § 103(a), we note that while it is true that both Feldi and Musslin disclose a tennis racket and ball retrieving hooked fastener material affixed to a shoulder region of a racket for engaging and lifting a grounded tennis ball upon tangential contact of the retrieving attachment member with the outer surface of the ball, each of these references provides no more than a generalized generic teaching that some form of hooked fastener material should be used as the retrieving attachment to permit retrieval of grounded tennis balls from the court without the need to bend down to reach the balls by hand. More particularly, Musslin suggests use of a "mechanical adhesive, like a clothe (wrapper) with hooks, including catching elements made of smooth layers full of retention and natural, artificial, synthetic or even metallic fastening threads" (translation, page 2) as the ball retrieving member, while Feldi expressly teaches using an entire hook and loop fastening system (i.e., loop material as the covering on a tennis ball and a compatible hook material affixed to a shoulder region of the

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racket) for engaging and lifting grounded tennis balls upon tangential contact of the hooked retrieving attachment member with the outer looped surface of the ball. Feldi generally suggests use of VELCRO "or any brand hook and loop fastening system" (Abstract).

Recognizing the shortcomings of the references to Feldi and Musslin vis-a-vis the particular type of hooked fastener material required in claims 1 and 10 on appeal, the examiner looks to the disclosure in the Related Art portion of the Melbye patent (col. 1, lines 15-18) that

[w]idely used as garment fasteners are hook-and-loop fasteners such as are currently marketed under the trademark VELCRO by Velcro USA Inc. and under the trademark SCOTCHMATE by 3M Co.

and asserts that

[c]ombining the fact that the Feldi abstract discloses that any hook-and-loop fastener system could be used in combination with his racquet or that Musslin discloses the broad recitation of a hook-and-loop fastener, with the fact that Melbye at column 1, lines 15-23 discloses that Velcro™ and Scotchmate™ products are functional equivalents as hook-and-loop fastener, and the fact that applicant admits in the specification that the materials with the physical characteristics set forth in the claims are old and well-known Scotchmate™ products, the selection of any of these known materials to form the hook-and-loop fastener of either Feldi or Musslin would be within the level of ordinary skill in the art. (Paper No. 3, pages 3-4).

What is lacking in both Feldi and Musslin is any teaching or suggestion that hook size (i.e., monofilament diameter, hook height, hook width and hook depth) are of any particular concern therein. This is especially true in Feldi, which relies upon the compatible nature of the selected hook and loop fastening system working together to retrieve the grounded tennis balls therein. Thus, Feldi has no concern whatsoever for any particular hook configuration and size, so long as the hook material on the tennis racket is compatible with the loop material on the ball. Similarly, Musslin provides no indication that hook size is of concern or of importance and merely suggests that any hook material which is capable of sticking on the tennis ball cloth envelope would be adequate.

The above-noted shortcomings in both Feldi and Musslin are in no way overcome by the teaching in Melbye that garment fasteners of hook and loop material are marketed under different trademarks by different companies (e.g., VELCRO by Velcro USA, Inc. and SCOTCHMATE by 3M). In that regard, we also note that there is no basis we can discern from the prior art relied upon for the examiner's apparent determination that any and all hook materials sold under the Scotchmate® brand of hook-and-loop

fasteners by 3M would necessarily (i.e., inherently) have hooks meeting the particular size limitations set forth in appellant's claims on appeal. In making the present rejection, the examiner has apparently failed to recognize that the fact that a claimed species or subgenus is encompassed by a broadly disclosed prior art genus is not sufficient by itself to establish a *prima facie* case of obviousness, especially where, as here, the appellant has provided evidence indicating that the particular hook size of the hook material of the present invention is needed in order to provide sufficient hook tenacity, deeply penetrate the pile of a tennis ball, and consistently hold the ball after hooking and during lifting of the hooked ball from the ground.

As for the examiner's reliance on appellant's disclosure concerning a particular form of industrial grade hook material that provides superior ball-retrieving efficacy when used in the manner described in the present specification, we agree with appellant that in searching for an incentive for modifying the tennis racket of Feldi or Musslin the examiner has impermissibly drawn from appellant's own teachings regarding the deficiencies of the prior art and fallen victim to what our reviewing Court has called "the insidious effect of a hindsight syndrome wherein

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that which only the inventor has taught is used against its teacher." W. L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 1554, 220 USPQ 303, 313 (Fed. Cir. 1983).

Since it is our determination that the teachings and suggestions to be fairly derived from the prior art relied upon by the examiner would not have made the subject matter as a whole of independent claims 1 and 10 on appeal obvious to one of ordinary skill in the art at the time of appellant's invention, we must refuse to sustain the examiner's rejection of those claims under 35 U.S.C. § 103(a). It follows that the examiner's rejection of dependent claims 2 through 7, 9 and 12 under 35 U.S.C. § 103(a) will also not be sustained.

Regarding the examiner's further rejection of dependent claims 8, 11 and 13 through 18 under 35 U.S.C. § 103(a), we have reviewed the reference to Urwin, but find nothing therein which overcomes or provides for the deficiencies we have identified above with regard to the basic combination of prior art applied against independent claims 1 and 10. Accordingly, the examiner's rejection of dependent claims 8, 11, and 13 through 18 under 35 U.S.C. § 103(a) will likewise not be sustained.

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Application 09/655,743

In light of the foregoing, the decision of the examiner to
reject claims 1 through 15 under 35 U.S.C. § 103(a) is reversed.

REVERSED

Charles E. Frankfort

CHARLES E. FRANKFORT
Administrative Patent Judge

Lawrence J. Staab

LAWRENCE J. STAAB
Administrative Patent Judge

John P. McQuade

JOHN P. MCQUADE
Administrative Patent Judge

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Appeal No. 2004-2020
Application 09/655,743

M. Paul Hendrickson
403 Main Street
P.O. Box 508
Holmen, WI 54636-0508

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE



In re Application of:

Alice H. Howe**TENNIS RACQUET EQUIPPED WITH
A TENNIS BALL RETRIEVER**

Docket No.: MPH 03-13

Application No: 10/635,873

Examiner: Raleigh Chiu

Filing Date: 08/05/2003

Art Unit: 3711

Mail Stop Fee Amendment
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

RESPONSE

This communication is in response to Office Action Paper No./Mail Date 07242004. A petition to extend the period of response and the appropriate fee therefore accompanies this response.

REMARKS**Specification Inaccuracy**

It is noted in Paragraph 1 that the serial number in the preliminary amendment of 08/20/2003 to which applicant desires priority was incorrectly stated. As noted by the Examiner, the correct number should have been 09/655,743 which had been inadvertently referenced as 09/665,743. It is assumed that the appropriate correction has been made to the preliminary amendment. However, if it has not already been made, the Examiner is requested to make the appropriate file correction. In case such a correction has or cannot otherwise be made by the Examiner, an amended first page of the corrected Specification accompanies this response.

Paragraph 3 and 4 - 35USC103(a) Rejections

In Paragraph 3, claims 1, 4, 6, 7, 9, 10, and 12 stand rejected under 35USC103(a) as being unpatentable over U.S. Patent Number 4,834,393 (Feldi) or French Patent Number 2,594,037 (Musslin) and either in view of the cited Melbye et al., (hereinafter Melbye) and applicant's admission of prior art in the specifications.

In Paragraph 4, claims 8, 11 and 13-15 stand rejected as being unpatentable over Feldi, Musslin, Melbye and applicant's admission of prior art in the specification as applied above in view of U.S. Patent Number 4,993,712 (Urwin).

With respect to the 35USC103(a) rejections of Paragraphs 3 and 4 of this Office Action, the same obviousness rejections had been made to applicant's corresponding claims in the parent application. The independent claims of this application are more limited in scope by reason claims 1 and 10 are prefixed by the words "consisting essentially of" as opposed to the "comprising" claim language of the parent application claims. Claim 1 herein also incorporates the more limited claimed elements of cancelled claims 2-4 of the appealed parent application claims. Claim 10 includes additional claimed limitations and method steps (e.g. step e) not present in the appealed parent application claim 10. Both claims 1 and 10 were deemed allowable and patentable over the prior art by the Board of Appeals. Thus, the issues herein are clearly embodied by the decision and appealed claims duly considered by the Board of Appeals in the parent application. In view of the Board of Appeals decision of Appeal Number 2004-2020, of September 21, 2004, the Board of Appeals clearly failed to sustain the Examiner's rejection of applicant's counterpart claims in the parent application based upon the same 35USC103(a) art rejection and issues. Thus, the grounds for rejecting the applicant's claims herein, has been clearly overruled by the Board of

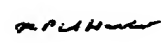
Appeals and the rejection of these claims should be accordingly withdrawn and a Notice of Allowance should be mailed forthright in view of the clear mandate of the Board of Appeals.

In Paragraph 6, claims 1, 4, and 6-15 stand provisional rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-15 of co-pending Application Number 09/655,743. As acknowledged in the Office Action, the double patenting rejection does not currently apply because no conflicting claims in the parent application have yet been patented. If and when the patent claims in the parent application or this application should become allowable and patentable, the applicant will then undertake the necessary disclaimer or other appropriate action to overcome this provisional double patent action rejection.

The claims are clearly patentably distinct over the art of record as proclaimed by the Board of Appeals. It is respectfully requested that a Notice of Allowance be made in this case.

Dated this 18th day of November, 2004.

Respectfully submitted,


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TENNIS RACQUET EQUIPPED WITH A TENNIS BALL RETRIEVER

This application is a continuing application of U.S. Patent application Serial Number ~~09/665,743~~ 09/655,743 entitled Tennis Racquet Equipped With a Tennis Ball Retriever filed on behalf of Alice H. Howe on September 6, 2000.

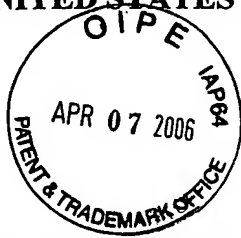
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Alice H. Howe

**TENNIS RACQUET EQUIPPED WITH
A TENNIS BALL RETRIEVER**

Docket No.: MPH 03-13



) Application No: 10/635,873

) Examiner: Raleigh Chiu

) Filing Date: 08/05/2003

) Art Unit: 3711

Mail Stop Amendment
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

RESPONSE

This communication is in response to Office Action Paper No./Mail Date 02192005.

This application is a continuing application of parent application serial No. 09/655,743 within which the more narrowly defined claims of this application were deemed allowable in the decision of the Patent and Trademark Board of Appeals of Case No. 2004-2020. The Board of Appeals reversed the Examiner in toto on grounds essentially identical to those involved in the 35USC103(a) rejections of this Office Action except for the newly cited secondary reference of U.S. Patent No. 6,401,997 to Smerdon Jr.

The appealed claims in the parent application were deemed allowable, patentably distinct over essentially the same 35USC103(a) rejection, involving the same references, by the same Examining Attorney in the decision of the Board of Appeals except that the appealed claims were broader in scope than the currently rejected claims of this application. The salient issue of the current 35USC103(a) rejections hinges upon whether or not this newly cited Smerdon patent provides the necessary 35USC103(a) teachings so as to cure the prior art defects as astutely noted

by the Board of Appeals in Appeal No. 2004-2020. Applicant respectfully submits that the Smerdon Jr. Patent fails to correct the 35USC103(a) deficiencies of the cited art of record. The Board of Appeals decision therefore dictates that the 35USC103(a) rejections herein should be withdrawn and that the applicant's claims be allowed.

The grounds for rejecting the claims 1-4, 6-15 under 35USC103(a) is therefore essentially identical to the precise grounds in which the Examiner was already reversed in the parent application Board of Appeals No. 2004-2020 with the exception that the rejection of the claims in this application additionally relies upon US. Patent 6,401,997 by Smerdon Jr. as a secondary reference.

In paragraph 2 of the Office Action, claims 1, 4, 6, 7, 9, 10 and 12 stand rejected under 35USC103(a) as being unpatentable over one of the U.S. Patent 4,834,393 (Feldi) or French Patent Number 2,594,037 (Musslin) either in view of U.S. Patent Number 5,077,870 (Melbye et al hereinafter referred to as Melbye), U.S. Patent Number 6,401,997 (Smerdon Jr. hereinafter referred to as Smerdon) and applicant's alleged admission of the prior art (referred to as AAPA). These are the same as the primary references as were relied upon in the rejection of the parent application. The reliance upon the Feldi patent as a primary reference in the rejection of claims 1, 4, 6, 7, 9 and 10 thus remains essentially identical to the same grounds of rejection relied upon by the Examiner in the appeal of the parent application. Similarly, the reliance upon the Musslin French patent as an alternative primary reference as applied in this Office Action remains substantially identical to the same grounds and issues considered by the Board of Appeals in the appealed claims of the parent application. Similarly, the same grounds and issues upon which the Melbye patent has now been relied upon in the rejection of applicant's claims 1, 4, 6, 7, 9, 10, and 12 herein this application remain substantially identical to those grounds and issues which

were relied upon by the Examiner in the parent application claims before the Board of Appeals, all of which grounds were totally reversed and not sustained in the parent application appeal.

As should be self-evident in this Office Action, the Board of Appeal readily recognized that the alleged grounds for admission of equivalency against interest or prior art admissions (AAPA) by applicant were without any legal merit and so held in its carefully considered opinion. Notwithstanding, the Board of Appeals decision and MPEP guidelines holding completely to the contrary to the position again mistakenly taken herein by the Examiner, the Office Action relies upon an alleged AAPA because there simply does not exist any art recognized authority to factually support the Examiner's unfounded assertions. This constitutes nothing more than relying upon applicant's own findings (not prior art) to provide the rationale and motivation for supplying unknown facts which are clearly not taught by the art of record. Applicant's own teaching and discoveries cannot form the factual basis for predicated a 35USC103(a) rejection. The prior art alone must provide the underlying facts upon which to predicate a 35USC103(a) rejection. The reliance upon applicant's own teachings constitutes nothing more than hindsight reconstruction of the prior art.

The Office Action clearly admits that Feldi, Musslin, or Melbye (as well as Urwin) all fail to disclose the recited hook size parameters such as monofilament diameter, hook height, hook width or hook depth, all of which the Board of Appeals chastised the Examiner for not setting forth the required art founded facts notoriously held to be an essential factor or requirement in order to sustain any 35USC103 rejection. Without factual justification, the 35USC103(a) rejections of record must likewise fail. Unfortunately, the newly cited Smerdon patent bears no relevancy to the nature and character of monofilament hooks or the use of monofilament hooks in the absence of the mating loop fasteners and adhesive backing which adhesively adheres to the

water tube and the bicycle handle bar stem.

Applicant incorporates by reference herein the decision of the Board of Appeals in which the same grounds of rejecting applicant's claims herein was firmly and resoundly reversed by the Board of Appeals. Applicant also incorporates by reference all of the responses including all the papers filed by applicant's attorney in the parent application including those of the appeal before the Board of Appeals as part of this response. There should be no need to argue about any admissions against interest by the applicant since the Board of Appeals carefully considered this issue and clearly held it was not an issue in this case. The Board of Appeals also clearly held that it is the responsibility of the Examiner to establish a prima facie case of obviousness by establishing those art founded facts which would fairly teach and suggest that one of ordinary skill the claimed embodiments of the applicant's invention. This requires that the prior art (not applicant's own teachings) fairly teach and suggest that the unique, very select and highly specific monofilament hooked material as narrowly defined by an average monofilament of at least 8.0 mil, an average hook height of a least 1.85 mm, an average hook width of a least 1.0 mm, and average depth of at least 0.6 mm with the hooks being of a spiral configuration arranged in respective rows of at least 250 hooks per square inch would possess the unexpectedly superior efficacy in tangentially retrieving a grounded tennis ball from a tennis court.

The prior art as cited by the Examiner herein clearly teaches (as acknowledged and held by the Board of Appeals) that what applicant has accomplished herein cannot be accomplished and that such unobvious claimed embodiments were not taught by the cited art. The prior art further provides no motivation, no suggestive teachings nor cogent reason why one of ordinary skill (amongst a myriad of other choices) would be lead to a uniquely distinctive, highly specific and atypical monofilament hooked material which has been solely found by the applicant to

unexpectedly possess superior efficacy in retrieving a grounded tennis ball.

Now, turning more specifically to the newly cited Smerdon patent, applicant respectfully submits that the Smerdon patent adds nothing to the rejection of record nor does it facilitate any further understanding or appreciation by one of ordinary skill as to the claimed inventive contribution of the applicant herein. For some amazing reason, the Examiner alleges that since the Smerdon patent discloses that the adhesive backing of certain hook and loop fasteners maintain good adhesion in wet and warm conditions to a handle bar stem and beverage tube that these obscure teachings must therefore ipso facto be suggestive of the highly specific embodiments of the claimed subject matter herein by the applicant. As with all of the cited references of record, there exists no teachings whatsoever of a hooked monofilament member of a highly specific compositional structure which uniquely and tenaciously engages and retrieves the piles of all grounded tennis balls. The non-sequitur of the hook and loop combination and the adhesive backing of the hook and loop combination as taught by Smerdon solely to equate to the hook element by itself should be self-evident. Smerdon does not use the hook by itself. Smerdon does not use the loop by itself. Smerdon does not use the adhesive backing by itself. Smerdon only teaches and suggests how the adhesive backing of the hook and loop combination will adhesively adhere to the water tubing and bike handlebar stem. The applicant must ask what other than speculative innuendos, abstract and speculative considerations does such a statement bear to any relationship or relevancy whatsoever to the embodiments of applicant's claimed invention herein. As so extensively argued before, there is nothing in Smerdon which remotely teaches or suggests that the monofilament hook by itself, without the loop or without the adhesive backing, should be separately used by itself. This is the same failure that exists in all of the patents relied upon in the 35USC103(a) rejections of record. Certainly, the hook by itself

serves no useful purpose in the invention as disclosed and used by Smerdon. Only the Examiner (knowing precisely what he seeking solely because of applicants own teachings) casting aside all other more germane considerations without any further guidance or motivation, fortuitously concludes Smerdon teaches matter which it does not teach. Analogous to randomly finding isolated words in a dictionary, Smerdon provides no motivation, no suggestion, no rationale as to why such a non-sequitur should be relevant to applicant's invention when viewed in light of the cited non-suggestive prior art teachings.

For reasons unclear from the Office Action, the Office Action relies extensively upon the Col, 12, lines 12-17 teachings:

“The hook and loop fasteners should have a pressure sensitive adhesive backing that till maintain good adhesion in wet and warm conditions. Examples of hook and loop fasteners that have been shown to work well in this application are the 3M Scotchmate TM SJ3526 and SJ3527 industrial fasteners.”

For some unknown reason, the Office Action deems that this non-sequitur as a clear teaching which provides the magic bullet for clearly directing the ordinary artisan unerringly towards applicant's claimed invention. The illogical conclusion of the Office Action assumes that if one skilled in the art is taught that an adhesive backing possesses good adhesion in wet and humid conditions for the hook and loop fastener combination, it naturally follows under the rationale of the Office Action that any hook element by itself will tangentially lift a tennis ball in wet and humid conditions. This is nonsense. The illogical conclusion is made that just because “those hook and loops fasteners maintain good adhesion in wet and warm conditions” (clearly in error because it is the adhesive backing which exhibits good adhesion in the wet and warm conditions), “tennis is generally an outdoor sport”, “tennis tournaments” “are played in wet

and warm conditions” and thereby such irrelevant teachings accordingly teach applicant’s claimed invention herein. The broken logic which reaches such an illogical conclusion defies all of the MPEP guidelines, the case law and statutory mandates of 35USC103(a). The Smerdon teachings strictly pertain to the adhesive backing without any further relationship to either the specific hook and loop characteristics. It is totally in error to conclude that such teachings would ipso facto suggest and teach that the adhesive backing (irrespective of the hook and loop function and purpose) would lead one skilled in the art directly to the monofilament hooked element of applicant’s claimed invention. It should be self-evident that Col. 12 of Smerdon teachings of:

“the hook fastener material 94 is adhered to the side of the handlebar stem where the beverage tube passes beside the stem. A length of loop fastener material 96 is adhered around the circumference of the end of the beverage tube. It is preferable to overlap the ends of the loop section slightly, so that the adhesive bonds to the loop material as well as to the surface of the beverage tube,”

bear no relationship to applicant’s claimed invention herein. Applicant is not claiming an adhesive backing for securing a water beverage tube to a handle bar stem with a hook and loop fastener. Both the hook and loop with the adhesive backing are required by Smerdon Jr. To abstractly isolate the monofilament hook element from the Smerdon Jr. patent hook and loop combination and adhesive backing teachings renders the Smerdon Jr. patent inoperative for its intended purpose and function. Such teachings clearly bear no relevancy to applicant’s claimed invention nor the teachings of Smerdon.

The strained rationale by which the Smerdon patent teachings has been applied to applicant’s claimed invention involves the highest order of hindsight reconstruction of sifting from Smerdon a remote, innocuous and unrelated teaching, which in the context within which it

is found, bears no relevancy whatsoever to applicant's claimed invention or Smerdon. The alleged Smerdon patent teachings, as applied in the Office Action, constitute nothing more than a random gleaning of isolated and disjointed teachings from Smerdon, taken totally out of the context in which they are found and then forcibly combined with other patent teachings in a manner completely untaught and un contemplated by any of the cited patents of record including Smerdon. Smerdon is thus being applied as a reference in a manner completely out of the context in which the Smerdon patent teachings are found and has been applied as disjointed and unrelated teaching to remaining patents of record.

The Examiner is missing the whole point of the Board of Appeals decision in which the Board chastised the Examiner's persistent reliance upon only the claimed hooked elements in each and every cited reference when the references were deemed to teach (as workable combination) the hook and loop fastener combination. None of the secondary references or patents have any relevancy to the use of the hook element as prescribed by applicants claims by itself. All of these references (including Smerdon) rely strictly upon the hook and loop fastener combination. The hook element by itself is an useless and irrelevant teaching within the context of the prior art teachings as relied upon in the 35USC103(a) rejection. Only the hook and loop combination is taught by Smerdon as being useful. Applicant is not claiming hoop and loop fastener combinations but only a precise monofilament hook of a highly specific character and a highly specific functionality which when uniquely utilized in combination with a grounded tennis ball, allows a tangential lifting of all grounded tennis balls from the court. In Smerdon, it is a combination of both hook and loop fastener with the adhesive backing that the Smerdon patent teaches and nothing more. There is no guidance, no suggestion, no direction whatsoever that fulfills the missing art gap and the unknown which existed in the prior art before applicant's

invention.

It is quite obvious that the applicant is now being confronted with a completely subjective rejection of her claimed invention when, in fact, the requirements of 35USC103(a) require that an objective obviousness standard be applied to all inventions. This requires an objective analysis of the claimed invention as a whole and an objective examination of the prior art to ascertain whether or not what is claimed is fairly taught and suggested by the prior art. When so viewed, it should then be recognized that the Smerdon patent bears no relationship, no relevancy, whatsoever to the applicant's claimed invention herein or the cited patents. If it becomes necessary to speculatively rely upon adhesive backing teachings of Smerdon, then to speculatively infer that hook and loop combination may also be relevant to applicant's claimed invention and then to ultimately speculatively infer that only the hook fastener element may be solely relevant to applicant's claims and the combined cited art as inferred in the 35USC103(a) rejection herein, it should become patently evident that the whole basis for relying upon Smerdon rests solely upon a chain of the most highly speculative inferences. Section 35USC103(a) requires facts, not speculative inferences. The same errorful rationale applies to other patents relied upon in the 35USC103 rejections as clearly held by the Board of Appeals.

The Examiner's reliance upon the Smerdon patent to correct the prior art defects of the claims in the appealed parent application must fail for precisely the same reason why the Examiner was completely reversed by the Board of Appeals in the parent application. In the Smerdon patent teachings as relied upon herein, the Smerdon patent clearly teaches that the loop of the hook and loop combination with the adhesive backing as an essential element for the function and use as described by Smerdon in the paragraph bridging columns 11 and 12. The Smerdon patent does not remotely teach or suggest that the hook component in the absence of

loop component will be useful for any purpose, much less the hook and loop fasteners maintains good adhesion in wet and warm conditions. There is nothing in the Smerdon patent which would remotely teach or suggest that the hook fastener element of the hook and loop Scotchmate TM SJ3526 and SJ3527 fastener will work by itself in the claimed embodiments of applicant's invention or even more remotely perform the unexpectedly unique attributes as recited by applicant's claims herein. Only applicant and applicant alone teaches this unique and unexpected embodiment.

The Office Action admits that none of the references disclose the critical recited hook size parameters such as monofilament diameter, hook height, hook width or hook depth, all of which the Board of Appeals was most critical in chastising the Examiner in the parent application appeal. In essence, the Board of Appeals clearly held that in the absence of this showing, there exists no factual justification whatsoever for the 35USC103(a) rejection of record. The current Office Action sidesteps this paucity in prior art teachings by alleging that the Smerdon adhesive backing teachings (which bear no relationship to the recited hook parameters) of both the hook and loop allows for the attachment of a beverage tube to the side of a bicycle handlebar system would of itself fairly suggest applicant's claimed invention. If one of ordinary skill were taught, suggested or remotely motivated by a relevant reference, such a relevant reference or patent (e.g. Smerdon) would appear at a minimum to bear some sort of relationship or teaching concerning the critical and unique parameters of applicant's claimed invention herein. To rely upon a teaching completely irrelevant and unrelated to the critical issues at hand as a basis for forming a 35USC103(a) rejection constitutes the highest order of hindsight reconstruction of the prior art. The applicant alone provides the sole rationale and reasons why such disjointed patent teachings of Smerdon would bear some sort of semblance to applicants

invention. The 35USC103(a) rejection is working on the wrong end of the problem when, in fact, the solution is in the opposite direction and even more specific than that. A host of abstract, speculative inferences and innuendos are required in order to apply Smerdon to the 35USC103(a) rejection of record.

In paragraph 4 of the Office Action, claims 8, 11 and 13-15 stand rejected under 35USC103(a) as unpatentable over Feldi or Musslin in view of Melbye, Smerdon and AAPA and in further view of U.S. Patent No. 4,993,712 to Urwin. This rejection again involves precisely the same issues that were on appeal except for the newly cited Smerdon patent. The Board of Appeals correctly held that the AAPA must fail because this does not constitute a valid basis for sustaining a 35USC103(a) rejection. The prior art (not applicants own teachings) must supply the prima facie facts upon which to base a 35USC103(a) rejection. For reasons pointed out above, Smerdon totally fails to correct the 35USC103(a) art founded defects of the parent application appeal.

When applicant's attorney inquired as to why the Notice of Allowance had not been mailed after the Board of Appeals decision in the parent application, the Primary Examiner indicated that he was so upset about the Board of Appeals decision that he was unable to work the remaining afternoon after receiving the Board of Appeals decision. At that time, without any further art in hand, the Primary Examiner informed the undersigned attorney that he fully intended to have the group Director reopen the case even though it was unknown at that time whether there even existed any factual basis for reopening the prosecution. These events reveal that applicant's invention is not being handled objectively and fairly upon its own merits but rather the prosecution has become a subjective and personal matter. This has done a great injustice to my client who has every reason to believe that her application would be treated fairly

and impartially before the United States Patent and Trademark Office. The applicant is a highly trustworthy and caring person, a credit to her nursing profession. When the Board of Appeals renders a decision to rectify this miscarriage of justice, the prosecution should not have been reopened without first correcting what was always wrong on the appeal. At a minimum, the MPEP guidelines and the Board of Appeals decision should be faithfully followed as impartially required by law.

If there existed a sound factual basis for reinstating the 35USC103(a) rejection, the reopening of the prosecution herein may then have been justified. However, after receiving the new grounds for rejecting the applicant's claims herein, it is self-evident that a decision was first made to reject applicant's claims on new grounds of rejection even before the Smerdon patent or any other reference was uncovered. Even if this was not the case, it should still be self evident that Smerdon teaches nothing further under the mandates of 35USC103(a). Only applicant's own teachings (often erroneously identified as AAPA) provides the sole rationale and logic why such meaningless teachings of Smerdon may intuitively bear some sort of semblance to applicant's claimed invention. It is respectfully submitted that the Board of Appeals will not kindly receive an appeal based upon a rejection which falls within the same errorfult ambit as the previously appealed claims. What was lacking in the parent application appeal still remains untaught and untemplated by Smerdon as well as any of the other cited patents of record.

The Examining Corp is obligated to give full faith and credit to a Board of Appeals decision. The Examining Corps does not have the legal prerogative to blatantly disregard a Board of Appeals decision by reinstating a rejection which posses the same reversal errors as already decided on appeal.

Applicant does not intend to allow the parent application and this application to issue so as to create a double patenting issue. If the claims herein are allowed, applicant will then make her decision as to what application will ultimately issue.

It is respectfully submitted that the rejected claims are allowable in form and clearly patentably distinct over the art of record as promulgated by the Board of Appeals. A fair and impartial reconsideration of the 35USC103(a) rejections of record is respectfully requested and that a Notice of Allowance be promptly issued.

Dated this 12th day of May, 2005.

Respectfully submitted,

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10/635,873

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Alice H. Howe

TENNIS RACQUET EQUIPPED
WITH A TENNIS BALL RETRIEVER

Attorney Docket No.: MPH 03-13



Application No: 10/635,873

Art Unit 3711

Examiner: Raleigh W. Chiu

Filing Date: 08/05/2003

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Alexandria, VA 22313-1450

RESPONSE

This communication is in response to Office Action Paper No./Mail Date 08062005, the Final Rejection of August 11, 2005, rejecting Claims 1, 4 and 6-15 under 35 U.S. C. 103(c).

REMARKS

This communication is in response to the final rejection of claims 1, 4 and 6-15 of the Office Action Paper No./Mail Date 08062005. The current application is a continuing application of parent application serial No. 09/655,743 within which the more narrowly defined claims of this application were deemed allowable essentially upon the same prior art in the decision of the Patent and Trademark Board of Appeals of Case No. 2004-2020. The Board of Appeals reversed the Examiner in toto on grounds essentially identical to those involved in the 35USC103(a) rejections of this Office Action except for the newly cited secondary or tertiary reference of U.S. Patent No. 6,401,997 to Smerdon Jr.

The appealed claims in the parent application were deemed allowable, patentably distinct over essentially the same 35USC103(a) rejection, involving the same references, by the same Examining Attorney in the decision of the Board of Appeals except that the appealed claims were

broad in scope than the currently finally rejected claims 1, 4 and 6-15 of this application. Claim 1 herein defines the attachment as "consisting essentially of" the claimed elements in contrast to the "comprising" wording of the appealed claim. Claim 1 of this application also incorporates the hook width limitation of original claim 2 thus more narrowly defining and limiting this hook fastener to a very limited and highly select type of hook fastener amongst a very broad and large class of fasteners. The salient issue of the current 35USC103(a) rejections hinges upon whether or not this newly cited Smerdon patent provides the necessary 35USC103(a) teachings saliently absent in the appeal and thus cures the prior art defects of the parent appeal as so astutely noted by the Board of Appeals in Appeal No. 2004-2020. Applicant respectfully submits that the Smerdon Jr. Patent fails to correct the 35USC103(a) deficiencies of the cited art of record. The Board of Appeals decision therefore dictates that the 35USC103(a) rejections of this final rejection should be withdrawn and that applicant's claims be allowed.

Applicant incorporates by reference herein the decision of the Board of Appeals in which the same grounds of rejecting applicant's claims herein were resoundly reversed by the Board of Appeals. Applicant also incorporates by reference herein all of the responses including all the papers filed by applicant's attorney in the parent application including those of the appeal before the Board of Appeals as part of this response. There should be no need to further argue about any admissions against interest by the applicant since the Board of Appeals carefully considered this issue and clearly held it was not an issue in this case. The Board of Appeals also clearly held that it is the responsibility of the Examiner to establish a prima facie case of obviousness by establishing those art founded facts which would fairly teach and suggest that one of ordinary skill the claimed embodiments of the applicant's invention. This requires that the prior art (not applicant's own teachings) fairly teach and suggest that the unique, very select and highly

specific claimed monofilament hooked material embodiments as narrowly defined by an average monofilament of at least 8.0 mil, an average hook height of at least 1.85 mm, an average hook width of at least 1.0 mm, and average depth of at least 0.6 mm with the hooks being of a spiral configuration arranged in respective rows of at least 250 hooks per square inch and that such claimed embodiments would possess the unexpectedly superior efficacy in tangentially retrieving a grounded tennis ball from a tennis court.

The prior art as cited by the Examiner herein clearly teaches (as acknowledged and held by the Board of Appeals) that what applicant has accomplished herein cannot be accomplished and that such unobvious claimed embodiments were not clearly taught by the cited art. The prior art further provides no motivation, no suggestive teachings nor cogent reason why one of ordinary skill (amongst a myriad of other choices) would be lead to a uniquely distinctive, highly specific and atypical monofilament hooked material which has been solely found by the applicant to unexpectedly possess superior efficacy in retrieving a grounded tennis ball.

The Office Action lacks all those prerequisite facts, as well as those legal principles upon which to predicate a *prima facie* case of obviousness rejection of Applicant's claims 1, 4 and 6-15. Every applicant is entitled to an unbiased adjudication and presentation of those facts upon which any 35USC103 rejection may be properly based. It is an essential prerequisite for all 35USC103 rejections that the prior art alone fairly teach and suggest the claimed invention without any reliance upon Applicant's inventive contribution to establish untaught facts as well as providing sufficient enabling guidance to enable the artisan of ordinary skill to make and use the invention as claimed by the Applicant. It is also an essential prerequisite of any 103 rejection that all claimed limitations of any rejected claim must be taught by a fair appraisal of those prior art teachings which are relied upon in the 35USC103 rejection. It is axiomatic under any

35USC103 rejection that the references must be reviewed in their entirety for what each reference teaches. It is completely impermissible to disregard teachings in a cited reference which are totally contradictory to the manner in which the references are combined with one another in the rejection of record. If a reference teaches that a certain result cannot be achieved using what is alleged to be an equivalent, the reference cannot be regarded to be suggestive of teaching something that cannot be accomplished. It is also self-evident that references when they are applied to the 103 rejection in a reference combination may not be modified to such an extent that the modification renders the reference or patent inoperable for its intended purpose or function. Unexpected results accomplished in view of the unachievable teachings of the cited art of record should under 35USC103 remain unexpected. These obviousness standards have not been obviously applied to the final rejection of record.

In paragraph 2 of the Office Action, claims 1, 4, 6, 7, 9, 10 and 12 stand rejected under 35USC103(a) as being unpatentable over one of the U.S. Patent 4,834,393 (Feldi) or French Patent Number 2,594,037 (Musslin) either in view of U.S. Patent Number 5,077,870 (Melbye et al hereinafter referred to as Melbye), U.S. Patent Number 6,401,997 (Smerdon Jr. hereinafter referred to as Smerdon) and applicant's alleged admission of the prior art (referred to as AAPA). The grounds for rejecting the claims 1-4, 6-15 under 35USC103(a) are therefore essentially identical to the precise grounds in which the Examiner was already reversed in the parent application Board of Appeals No. 2004-2020 with the exception that the rejection of the claims in this application additionally relies upon US. Patent 6,401,997 by Smerdon Jr. as a secondary or tertiary reference.

The reliance upon the Feldi patent as a primary reference in the rejection of claims 1, 4, 6, 7, 9, 10 and 12 remains identical to the that in the appeal of the parent application. Similarly, the

reliance upon the Musslin French patent as an alternative primary reference remains substantially identical to the same grounds and same issues considered by the Board of Appeals in the appealed claims of the parent application. Similarly, the same grounds and issues upon which the Melbye patent has now been relied upon in the rejection of applicant's claims 1, 4, 6, 7, 9, 10, and 12 herein this application remain substantially identical to those grounds and issues which were relied upon by the Examiner in the parent application claims before the Board of Appeals, all of which grounds were totally reversed and not sustained by the Board of Appeals in the parent application appeal.

As should be self-evident in this Office Action, the Board of Appeal readily recognized that the alleged grounds for admission of equivalency against interest or prior art admissions (AAPA) by applicant were without any legal merit and so held in its carefully considered opinion. Notwithstanding, the Board of Appeals decision and MPEP guidelines holding completely to the contrary to the position again mistakenly taken herein by the Examiner, the Office Action relies upon an alleged AAPA because there simply does not exist any art recognized authority to factually support the Examiner's unfounded assertions. This constitutes nothing more than relying upon applicant's own findings (not prior art) to provide the rationale and motivation for supplying unknown facts which are clearly not taught by the art of record. Applicant's own teaching and discoveries cannot form the factual basis for predicating a 35USC103(a) rejection. The prior art alone must provide the underlying facts upon which to predicate a 35USC103(a) rejection. The reliance upon applicant's own teachings constitutes nothing more than hindsight reconstruction of the prior art.

The Office Action clearly admits that Feldi, Musslin, or Melbye (as well as Urwin) all fail to disclose the recited hook size parameters such as monofilament diameter, hook height, hook

width or hook depth, all of which the Board of Appeals chastised the Examiner for not setting forth the required art founded facts notoriously held to be an essential factor or requirement in order to sustain any 35USC103 rejection. Lacking the same want of factual justification, the 35USC103(a) rejections of record must likewise fail. The newly cited Smerdon patent bears no relevancy to the nature or character of monofilament hooks or the use of monofilament hooks in the absence of the mating loop fasteners and adhesive backing as is generally the case of all hook and fasteners as designed to adhesively adhere to substrates to which they are applied such as the water tube and the bicycle handlebar stem applications of the Smerdon patent.

FACTUAL RESOLUTION

Before there can be any resolution of the 35 U.S.C. 103 issues herein, it is first necessary to establish Fact from Fiction. The following facts are clearly elucidated by each of the cited patent teachings as a whole. The facts are as follows:

Feldi Facts

1. **FACT** - The primary reference *Feldi* states that, "a hook material (ex. VELCRO) when affixed to the end of a tennis ball racket " "does not effectively pick up a" standard tennis ball with this system", and that the standard material is not compatible with the hook fastener system... in that, "the hooked material destroys the tennis ball covering."
2. **FACT** - a VELCRO hook material of the type as tested and described by *Feldi* does not work (via tangential contact) upon the tennis ball felt cover as claimed.
3. **FACT** - The *Feldi* solution to the problem is to eliminate the tennis ball pile covering by replacing the pile covering with one of a nylon VELCRO loop fastener combination so that the VELCRO hook will then hook and fasten onto the nylon loop or hook ball covering. (Both the hook and loop must be used to work.)

4. **FACT** - Applicant's claims recite a ball retrieving attachment "for engaging and lifting a grounded *tennis ball* upon **tangential contact** with said *tennis ball* ... for engaging and lifting the grounded *tennis ball* upon tangential contact with said hooks."

5. **FACT** - The altered ball of *Feldi* is not a tennis ball, since a tennis ball by standard of identity "must be covered with felt." Felt is notoriously known and defined¹ as "a cloth or fabric made of wool, or of wool and fur or hair." Neither the VELCRO hook nor loop material of *Feldi* is of wool. Therefore, the altered ball of *Feldi* is not a tennis ball and does not meet the claimed "tennis ball" requirements of Applicant's claims. (Applicant encloses herewith Wilson Sporting Good's response to tennis ball standards²).

6. **FICTION** - There is no basis, in fact, for the speculative conclusion that "the claims do not preclude changing the tennis ball pile and the *Feldi* racket itself, as modified above, would inherently function as recited." Inherency does not apply since inherency must be proven and requires identity of substance, (also the retrieval with a ball retrieving attachment involves a tennis ball vs. a non-tennis ball).

7. **FACT** - Applicant's claims prescribe a tennis ball and, therefore, the non-tennis ball teachings of *Feldi* is precluded by Applicant's claims.

8. **FACT** - *Feldi* neither discloses nor remotely suggests "a ball retrieving attachment attached to a shoulder of the racquet in ball retrieving position" of "a series of preshrunk nylon monofilament hooks... having a monofilament diameter great than 8.0 mil and an average hook height of at least 1.70 mm." which upon tangential contact with the tennis ball felt cover engages the pile and thereupon allows the ball to be lifted thereby. *Feldi* states unequivocally

¹ Webster's New Universal Unabridged Dictionary Deluxe, Second Edition 1983

² Wilson Sporting Goods defines a tennis ball as having a wool pile cover

that the VELCRO monofilament hook materials of the type known and understood by *Feldi* do not work.

9. **FACT** - Two significant and material claimed limitations (i.e. tennis ball) *tangentially engaging and lifting a standard tennis ball* (i.e. wool pile) with a very narrowly defined and precise hooked material (Claim 1 diameter greater than .8 mil, average height at least 1.70 mm; Claim 10 diameter at least 8.0 mil, average hook height at least 1.85 mm; average width at least 1.0 mm; and average depth at least .6 mm and at least 250 hooks per square inch of spiral configuration arranged in repetitive rows "are neither disclosed nor remotely contemplated by *Feldi* or any other cited patent of record."

10. **FACT** - Applicant's results are completely unexpected in light of *Feldi*'s prior art teaching that a VELCRO hook material does not work and the need to completely replace the tennis ball pile covering with a VELCRO loop covering or vice versa.

11. **FACT** - An essential embodiment of *Feldi* is to change the ball covering to a VELCRO loop (or hook) material and, therefore, no longer be recognized as a tennis ball which definition precludes a ball having a VELCRO loop or hook covering.

12. **FACT** - The *Feldi* patent teachings cannot be applied against Applicant's claims without first destroying the basic and novel teachings (i.e. replace wool pile covering with VELCRO), as well as the essence of the *Feldi* patent.

13. **FACT** - In combining the *Feldi* patent teachings with any of the other cited patents, an essential *Feldi* teaching must be totally disregarded and discarded, namely you must change the tennis ball cover to either a hook or loop VELCRO material which *ipso facto* renders the *Feldi* teaching inoperable and unfit for its intended function and purpose if, in fact, the cover remains unchanged.

14. **FICTION** - The final rejection assertion that the VELCRO hook material as defined and used by the *Feldi* is an equivalent to the narrowly defined hooked material as prescribed by Applicant's claims is legally and factually wrong. If it were, it would work.

15. **FACT** - Neither the ball retrieving attachment nor the hooked material as defined by *Feldi* perform the same function as Applicant's narrowly defined and unusual hooked material and, therefore, it cannot be regarded to be the equivalent to the claimed ball retrieving attachment or hooked material of Applicant's claims. The mere fact that a product brand is called a SCOTCHMATE does not render it *ipso facto* equivalent, since as shown by the Applicant's Affidavit, the SCOTCHMATE mushroom type fasteners do not work as well as most others.

16. **FACT** - Inherency cannot be presumed but must be proven by the prior art, not Applicant's contribution, M.P.E.P. 2112.

Musslin Facts

1. **FACT** - The teachings of the *Feldi* patent (filed December 27, 1987 and patented May 30, 1989) rest upon technology known after the *Musslin* patent teaching and, therefore, *Feldi* summarizes the state of the known art as of the registration date (02/07/1986) of the *Musslin* patent. (i.e. VELCRO or any other monofilament hooked materials will not tangentially engage and lift tennis balls.)

2. **FACT** - The *Musslin* patent fails to provide any information as what constitutes a suitable cloth (wrapper) with hooks (including metal fastening threads) which may be used in the French patent.

3. **FACT** - The *Musslin* patent fails to provide any enabling teachings (i.e. 35 U.S.C. 112) so as to enable anyone of ordinary skill to make and use a non-enabling substance of the *Musslin* invention.

4. **FACT** - *Feldi* teaches that the VELCRO hook materials do not work

5. **FACT** - *Musslin* neither discloses nor remotely teaches use or Applicant's claimed ball retrieving attachment comprising "hooked fastener material having a series of pre-shrunk nylon monofilaments ... of ... "an average diameter greater than 8.0 mil and an average hook height of at least 1.70 mm (claims 1-9) or the method claim 10 limitation of an average:

- height of at least 1.85 mm (also claims 4-8 and 10-15)
- diameter of at least 8.25 mil (also claims 4-8 and 10-15)
- hook width of at least 1.0 mm (claims 4-8 and 10-15)
- depth of at least 0.6 (claims 4-8 and 10-15)
- at least 300 hooks per inch squared (claim 9)
- at least 250 hooks (claim 10)

6. **FACT** - *Musslin* leaves the artisan completely in the dark as to what works and what does not work which in light of the *Feldi* teachings indicates *Musslin* is nothing more than a paper conceptual patent leaving the artisan to a myriad of potential applications, as taught by both *Urwin* and *Feldi*, which don't work (without increasing significantly the surface area of contact) as evidenced by both the *Feldi* and *Urwin* patent teachings.

7. **FACT** - The essential elements of applicant's claimed ball retrieving attachment and hooked material are not disclosed by *Musslin*.

Urwin Facts

1. **FACT** - *Urwin* does not disclose the embodiments of applicant's invention, nor does *Urwin* teach that one would succeed through the means of tangentially contacting, engaging and lifting a tennis ball with the narrowly defined ball retrieving attachment of hooked materials as prescribed by applicants claims 1-15.

2. **FACT** - *Urwin* teaches precisely the opposite from Applicant's "tangential contacting" by stating that "a strip which follows the contour of the head of the tennis ball racquet has a curve diametrically opposite to the curve of the tennis ball, *meaning that only one small area of the strip can come in contact with the tennis ball, making it very unlikely that the ball can be grasped securely enough to be picked up.*" (for example, see Column, 2, Lines 1-10)
3. **FACT** - *Urwin* states that the most appropriate place "where the apparatus provides a means to attempt to grasp the tennis ball and that is at the butt end of the handle of the tennis racquet." (Column 1, Lines 61-64).
4. **FACT AND FICTION** - The Examiner's reliance upon Col. 4, lines 8-13 of *Urwin* is wrong since the cup shaped ball retriever **10** of Figure 3 includes a base having a VELCRO strip **24** which allows the cup shaped retriever **10** to removable attached to the VELCRO strip **30** referenced in Col. 4, lines 8-13. The VELCRO strip **30** of Figure 1 does not pick up the ball, but serves only as a mount for ball retriever **10** of *Urwin*..
5. **FACT** - The essence of the patented invention of *Urwin* relies upon increasing the surface area of hooked material contact with the tennis ball by providing a cup shaped retriever **10** which engages over a large portion of the tennis ball surface and thereby provides sufficient arcuate surface contact along almost one-half of the radial surface of the tennis ball pile so as to permit the tennis ball to be lifted thereby.
6. **FACT** - The applicant's claimed invention of tangentially contacting, engaging and lifting of the tennis ball cover with the unique claimed tennis ball attachment is completely contradictory to the ball encompassing teachings of *Urwin* and *Urwin's* clear teachings that such an approach would make it very unlikely to effectively grasp and pick up the tennis ball.
7. **FACT** - Applicant's claimed invention relies upon entirely different principles and mode

of operation from that disclosed by *Urwin*. (Cupping vs. tangential contacting and lifting.)

8. **FACT** - The cup shaped ball retriever of *Urwin* is an essential embodiment and teaching of the *Urwin* patent. Accordingly, it would be impermissible when relying upon *Urwin* to completely disregard the need and functional purpose of an encompassing cup which provides sufficient surface area so that the ball may be lifted and retrieved thereby.

9. **FACT** - Applicant's tangential contacting completely contradicts the engaging cup teachings of *Urwin*, and therefore, *Urwin* clearly teaches and directs the artisan away from the embodiments of Applicant's claims 1-15.

10. **FACT** - The invention as described by *Urwin* would be rendered inoperative by the replacement of the cup shaped ball retainer with the tangential contacting engaging and lifting embodiments of Applicant's claimed invention.

11. **FACT** - Applicant's tangential contacting and lifting embodiments are totally unexpected in view of *Urwin's* teachings.

Melbye Facts

1. **FACT** - The *Melbye* mushroom type hook strip is not a "hooked fastener material having a series of preshrunk nylon monofilament hooks... characterized as having a monofilament diameter greater than 8 mil and an average height of at least 1.70 mm." Applicant's claimed hooked material is totally different, as clearly defined by claims 1, 4 and 6-15.

2. **FACT** - The *Melbye* (SCOTCHMATE) mushroom hook strip when applied as a hooked fastener does not work as clearly evidenced by Applicant's Rule 132 Affidavit.

3. **FACT** - The *Melbye* mushroom type hook strip is not an actual and obvious equivalent to the unique and distinctly unique monofilament nylon hook fastener materials as defined by Applicant's claim. (Equivalent must perform the same functional result.)

4. **FACT** - That the mentioned VELCRO AND SCOTCHMATE garment fasteners are not taught by *Melbye* as garment fasteners when the hook component is used in the absence of their tailor-made and mating loop fastener component.

5. **FACT** - *Melbye* neither teaches nor suggests any use of the hook component by itself.

6. **FACT** - Just because 3M classifies a host of different fasteners as being sold under the SCOTCHMATE label does not mean that all SCOTCHMATE products are the actual and obvious equivalent to one another as evidenced by Applicant's 132 Affidavit.

7. **FACT** - To apply *Melbye* as a 103 reference would require a total disregard of the essence of the *Melbye* patent, (i.e. replace the mushroom type fastener with an unrelated and completely different monofilament fastener of totally unrelated hook characteristics.)

Smerdon Facts

1. **FACT** - *Smerdon* does not disclose the embodiments of applicant's invention, nor does *Smerdon* teach that one would succeed through the means of tangentially contacting, engaging and lifting a tennis ball with the narrowly defined ball retrieving attachment embodiments of a one-of-a-kind hooked material as prescribed by applicant's claims.

2. **FACT** - The *Smerdon* patent teaches the essential need to adhesively wrap an extra width of mating hooked fasteners material 94 about the bicycle stem and a mating or matched loop fastener material 96 adhesively wrapped about a beverage tube at a position so that a cyclist may drink from the beverage tube by detaching and then reattaching by fastening the mating hooked 94 and lopped 96 fasteners together.

3. **FACT** - *Smerdon* pertains solely to a hook and loop fastener combination used conjointly for their intended purpose.

4. **FACT** - *Smerdon* does not remotely teach or suggest that either hook and loop fastener

combination of SJ3526 or SJ 3527 industrial fasteners can be used separately from their intended use solely as a hook and loop fastener combination much less the hooked material can be used to tangentially lift grounded tennis balls.

5. **FACT** - By separating the hooked material from the looped material of the SJ 3526 and SJ3527 industrial fastener combination from the *Smerdon* patent teachings, the *Smerdon* patent teaching as applied in the final rejection renders the *Smerdon* patent teachings inoperable for their intended purpose and function (i.e. the hook material was never intended by *Smerdon* to function or be used by itself).

6. **FACT** - There exist a myriad of potential fasteners amongst the hook and loop fasteners of which there exists not the slightest scintilla of substantive teachings in *Smerdon* that the hook fastener material by itself may be used to effectively and uniquely amongst all others to tangentially lift with unexpected superior tenaciousness all major tennis balls.

7. **FACT** - *Smerdon* bears no relevancy to the unexpected superior hooking and lifting capacity of applicant's attributes as claimed and disclosed in applicant's application.

EQUIVALENCY FICTION

1. **FACT** - Applicant has never acquiesced or stated that the ball retrievers disclosed by the prior art are the equivalents (actual and obvious) to Applicant's ball retriever attachment of the hooked monofilaments of the highly specified structure and characteristics as prescribed by Applicant's claims.

2. **FACT** - Applicant's Rule 132 Affidavit refutes in total the Examiner's unwarranted and unsubstantiated assertion that all SCOTCHMATES and all fasteners are the actual and obvious equivalents to one another including Applicant's unique ball retriever attachment..

3. **FACT** - Contrary to the Office Action's assertion, there exists a host of different types of

fasteners which heretofore were recognized by the art of record as incapable of tangentially engaging and lifting a tennis ball therewith, and that pursuant to these prior art teachings, tennis ball lifting efficacy could only be accomplished by increasing the contacting surface in a cup-wise fashion so as to provide sufficient contact with the ball so as to permit the hook fasteners to lift the ball thereby (*Urwin*) or by changing the ball to a hook or loop covering (*Feldi*).

4. **FACT** - Equivalency is clearly refuted by the cited art of record which clearly states that the VELCRO fasteners as used and applied by the prior art were incapable of providing the unexpected tangential contacting engaging and lifting attributes of Applicant's ball retrieving attachment of claims 1-15. As a general rule, SCOTCHMATE fasteners of the VELCRO type do not work. The uniqueness of the Applicant's ball retrieving attachment of precise monofilament fiber hook character as claimed herein provides a totally new and unexpected result within an art background consistently believing that it could not be done.

5. **FACT** - If none of the references of record disclose or define a ball retrieving attachment with a monofilament hooked fastener as uniquely claimed herein which uniquely permits tangential contacting and lifting of a tennis ball therewith, there cannot be any equivalency when, in fact, all of the references relied upon failed to disclose these unique embodiments of Applicant's invention in sufficient detail so as to enable anyone of ordinary skill to make and use Applicant's invention.

6. **FACT** - Equivalency cannot be predicated upon an unexpected and unique function totally absent from all other functions relied upon and alleged to be equivalent.

NO PRIMA FACIE CASE OF OBVIOUSNESS EXISTS

The 35 U.S.C. 103 rejection of record disregards the obviousness patentability guidelines as set forth in Chapter 2100 of the M.P.E.P.. The final rejection appears to rely upon a mystical

alleged factual conclusion that just because a SCOTCHMATE is known, then all fastener combinations amongst a vast number of different selections from a wide array of potential sources would be obvious to one of ordinary skill. In essence, the final rejection rests upon a host of speculative assumptions which in effect have nothing to do with the problem confronting the applicant and the prior art or what the prior art teaches, all of which, in turn, disregards the well established requirement of analyzing the subject matter as a whole. Before there can be any resolution whatsoever of the 35 U.S.C. 103 rejection, it is imperative that the invention as a whole, and not some part of it, must be obvious. *In re Antonie*, 559 F.2d 618, 620, 195 USPQ 6,8 (CCPA 1977). The claimed subject matter, as a whole, includes tangentially contacting and lifting a conventional tennis ball (which, *ipso facto*, includes the tennis ball felt covering) with a highly specified ball retrieving attachment equipped with a one-of-a-kind monofilament nylon hooked material defined by its one-of-a-kind characterization.

To establish *prima facie* obviousness of a claimed invention, **all the claim limitations must be taught or suggested by the prior art**, as stated in M.P.E.P. 2143.03. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). All words in a claim must be considered in judging the patentability of that claim against the prior art." "In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is non-obvious under 35 U.S.C. 103, then any claim depending therefrom is non-obvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)."

Clearly, the only basis for alleging all of the claimed limitations of Applicant's claims have been met by the prior art rests solely upon a totally unsupported allegation that the Applicant has admitted equivalency to the highly specific and precise ball retrieving attachment of claimed hooked fasteners herein to those taught by the prior art as relied upon in the 350

U.S.C. 103 rejection. Applicant strenuously objects to such a strained and totally unwarranted conclusion that the Applicant has admitted equivalency between the claimed subject matter of this invention and the prior art. It does not exist. There is no support for such an unfounded assertion and it should be withdrawn for total want of factual and legal justification. Within a somewhat analogous situation the M.P.E.P. under section 2401.02 recognizes this fallacy by stating,

“The prior art did not recognize that treatment capacity was a function of the tank volume to contractor ratio, and therefore the parameter optimized was not recognized in the art to be a result-effective variable. The prior art did not recognize and, in fact, failed to teach the very limited and highly specific parameters of the hooked materials (as a whole) as claimed herein by the Applicant would lend to a totally unexpected result precisely opposite from what the cited patents teach.”

Again, the Applicant reiterates the fact that the characterizations of the ball retrieving attachment and monofilaments as precisely claimed herein are totally absent from anything cited or made of record by the Examiner in the 35 U.S.C. 103 rejections herein. In fact, the equivalency as alleged to be established by the *Melbye* patent is completely inoperable when applied to the tangential contacting and lifting requirements of Applicant's invention, which fact remains irrefuted and clearly substantiated by Applicant's Rule 132 Affidavit. Under the patentability requirements of 2141.02 it is stated, “A prior art reference must be considered in its entirety, i.e. as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). The *Gore* decision acknowledged this by holding that a reference teaching rapid stretching of conventional plastic polypropylene with reduced

crystallinity combined with a reference teaching stretching unsintered PTFE would not suggest rapid stretching of highly crystalline PTFE, in light of the disclosures in the art that teach away from the invention, i.e., that the conventional polypropylene should have reduced crystallinity before stretching, and that PTFE should be stretched slowly.”

PRIMA FACIE OBVIOUSNESS MUSTS

Section 2143 of the M.P.E.P. makes it succinctly clear that three basic criteria must be met in order to establish a *prima facie* case of obviousness. It is unequivocally clear herein that these three basic criteria have not been met. These criteria are as follows:

“To establish a *prima facie* case of obviousness, three basic criteria must be met. **First, there must be some suggestion or motivation**, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, **to modify the reference or to combine reference teachings**. **Second, there must be a reasonable expectation of success**. **Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations**. All of these elements are lacking in the Final Rejection.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant’s disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).” Only Applicant’s claimed invention herein unlocks the inoperability of the prior art endeavors.

The final rejection appears to rest upon the premise that references may be arbitrarily combined by simply randomly gleaning discordant teachings from each of the cited references and then forcibly combining those discordant teachings (notwithstanding clear teachings otherwise) in such a manner so as to meet the claimed limitations of Applicant’s invention. Unfortunately, even when all this is done, there is still lacking a teaching reference or patent

teaching of the unique ball retrieving attachment of precise monofilament hook characteristics of Applicant's claims which for want of any other justification is assumed to be equivalent because the Applicant allegedly admitted equivalency. References can only be combined if there exists a suggestion or motivation in the references to do so, M.P.E.P. 2143.01.

**FACT THAT REFERENCES CAN BE COMBINED OR MODIFIED IS NOT
SUFFICIENT TO ESTABLISH *PRIMA FACIE* OBVIOUSNESS**

The final rejection clearly falls within the ambit of: "A statement that modifications of the prior art to meet the claimed invention would have been " 'well within the ordinary skill of the art at the time the claimed invention was made'... " because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993). See Also *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999) (The level of skill in the art cannot be relied upon to provide the suggestion to combine references.)"

Applicant has taken great care to point out above, as well as in Applicant's previous response that, "If a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)..." (N.B. *Urwin*, *Feldi*, *Musslin*, etc.)

Chapter 2100 of M.P.E.P. also makes it explicitly clear that when references are combined with one another so as to modify a reference, then the proposed modification cannot change the principle of operation of the modified reference. Clearly, the manner in which the

references have been applied against Applicant's claims must necessarily change the principle of operation of the reference so that it no longer functions in its intended manner. (e.g. *Feldi, Urwin and Melbye*).

The decision *in re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959) is pertinent in that therein the claims were directed to an oil seal comprising a bore engaging portion with outwardly biased resilient spring fingers inserted in a resilient sealing member. The primary reference of *Ratti* relied upon in a rejection was based on a combination of references disclosing an oil seal wherein the bore engaging portion was reinforced by a cylindrical sheet metal casing. The *Ratti* patentee taught the device required rigidity for operation, whereas the claimed invention required resiliency. It is rather interesting that the Court of Customs and Patent Appeals, in reversing an Examiner's obviousness rejection, held that the suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operation. The final rejection herein rests upon the same fallacy.

As pointed out previously, Section 2143.03 requires that all of the claimed limitations must be taught or suggested by the prior art. "To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). Similarly, 'all words in a claim must be considered in judging the patentability of that claim against the prior art.' *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is non-obvious under 35 U.S.C. 103, then any claim depending therefrom is non-obvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)."

Lastly, there has not been any consideration whatsoever given to the secondary objective evidence of record. Section 2141 requires that "OBJECTIVE EVIDENCE MUST BE CONSIDERED. Objective evidence or secondary considerations such as unexpected results, commercial success, long-felt need, failure of others, copying by others, licensing, and skepticism of experts are relevant to the issue of obviousness and must be considered in every case in which they are present. When evidence of any of these secondary considerations is submitted, the examiner must evaluate the evidence of Section 2141."

Additional Insights

The final rejection involves a creative reconstruction of the prior art in a manner completely contradictory to the very references relied upon. The reliance upon Applicant's admission of equivalency is factually and legally wrong. The mere fact VELCRO and SCOTCHMATE may be regarded as hook-and-loop fasteners does not mean that equivalency exists. On page 3, paragraph 2 the Office Action wrongly concludes equivalency upon *Melbye's* Col. 1, line 15-18 teachings of "widely used garment fasteners are hook-and-loop fasteners such as currently marketed under the trademark VELCRO by VELCRO U.S.A., Inc., and under the trademark SCOTCHMATE by 3M Company." The Office Action misses the whole point of the doctrine of equivalency meaning that actual and obvious equivalency does in fact exist. Actual equivalency means that they function in the same manner to produce the same result. The product as defined by *Melbye* may be a SCOTCHMATE which, as clearly stated in Applicant's Rule 132, is neither the actual or obvious equivalent of the highly unique and specialized monofilament hooked material as prescribed by Applicant's claims. **It does not work, it does not function.** None of the teachings of record remotely disclose or contemplate the untaught embodiments of Applicant's invention. Obviousness cannot be predicated upon what is

unknown and uncited. Neither *Musslin*, *Urwin*, *Feldi* nor *Smerdon* disclose or suggest that VELCRO or SCOTCHMATE may be used to tangentially contact and lift a tennis ball. If you modify the ball so it either contains VELCRO hooks or loops instead of the tennis ball felt cover so the combined hook or loop lifts the ball or to more completely encircle or cup the ball (*Urwin*), then it will work, BUT neither of these embodiments constitute Applicant's claimed invention.

The reliance of column 4, lines 8-13 that "the hook fastener may be placed anywhere along the outer surface of the racquet frame" of *Urwin* arises from a failure to read *Urwin* for what it teaches. The VELCRO strips mentioned in Col. 4, lines 8-13 refer only to the placement of hook and loop strip onto which the cupped shaped ball retrieving attachment 10 or "arcuate shaped gripping member 40 is removeably affixed to the gripping means by gripping means 24 which are hook VELCRO fastener." As stated, "the tennis ball fits snugly within the interior of arcuate shaped gripping member 10." The gripping means 10 as shown in Figure 3 of *Urwin* may be attached anywhere where there is a fastening strip for it to be attached. One should read and understand the patent's teaching before choosing a passage which bears no relevancy to what the patent teaches as a whole.

Accompanying a previous response in the parent application was a copy of a response received from Wilson Sporting Goods which should put an end to the Office Action's strained construction "that the claims do not preclude changing the tennis ball pile." If that were done as taught by *Feldi*, it would no longer be a tennis ball. For whatever reason, the Office Action deems it necessary to reject Applicant's claims based on conclusions which are contrary to the very patent teaching relied upon. Applicant respectfully requests an examination of each of the patent teachings, as a whole, and not by a random gleaning of only those isolated and disjointed

teachings which support a rejection at the exclusion of those teachings needed to understand what the art fairly teaches and suggests to the artisan.

There exists no factual basis under 35USC103 to reject Applicant's claims 1, 4 and 6-15 herein. The final rejection recognizes the want of such facts and attempts to rely upon erroneous conceptions to provide what is factually and legally wanting. The M.P.E.P. guidelines as to what constitutes a proper 35 U.S.C. 103 rejection has not even been taken into account. The final rejection is **WRONG**. Applicant's claimed invention is truly unexpected and patentable since the very art relied upon by the Examiner in the final rejection clearly states it cannot be done.

The final rejection fails to take into account what the cited patents of record actually teach and suggest to one of ordinary skill. Each of the cited patents have been selectively and randomly gleaned for only those terms which may bear some sort of semblance towards applicant's claimed invention in total disregard and disrespect as to what each patent teaches the ordinary artisan as a whole. In combining the patent teachings under 35USC103(a) in the final rejection, essential elements or component parts necessary to the operability of each patent have been summarily disregarded. Assumptions and speculative conclusion unfounded in fact and often contrary or in complete disregard of context in which they have been made supply the entire rationale for the final rejection. The strained illogic of the final rejection is self evident by the conclusory statements made in the final rejection of August 11, 2005 of:

1. Feldi discloses the combination of a tennis racket equipped with a ball retrieving attachment attached to the shoulder of a racquet wherein the ball-retrieving attachment can be a hooked fastener material such as VELCRO when in fact Feldi requires "a tennis ball specially covered in a loop fastener material (see U.S. Patent No. 6,652,397 B1 to Lamson) which specifically mates onto the mating hooked material as any other mating

hook and loop fastener combination. Absent the mating loop fastener covered tennis ball, the hooked material by itself (as taught by Feldi) possess no capacity to engage and lift an ordinary tennis ball. What applicant has accomplished is completely contrary and unexpected in view of what Feldi teaches the ordinary artisan. Feldi teaching of any hooked material in the absence of tennis ball covered with a mating looped material is meaningless and involves the highest order of speculation without any factual support as required under 35USC103(a).

2. Musslin is a discredited foreign patent which as acknowledged by the Board of Appeals teaches nothing germane to applicant's claimed invention.
3. Melbye teaches garment fasteners consisting of the hook and loop combination.
4. Smerdon teaches a mating combination of a hook fastener and a loop fastener each of which is essential so as to fasten together the watering tube to the bicycle stem with the hook and loop fastener combination such as SCOTCHMATE or any other fastener combination.

Lamson Patent - Status Prior Art

Applicant's attorney has been deeply troubled a recent uncovering of the enclosed U.S. Patent No. 6,652,397 B1 to Lamson. The Lamson patent was filed after applicant's parent application and names Raleigh W. Chiu as the Primary Examiner. Applicant's attorney courtesy directs the Examiner's attention to Background of the Invention teachings of Col. 1, 2 and 3, lines 1-14 and requests that the Examining Attorney carefully review Lamson's extensive and comprehensive review of the state of the art as it existed at the time that the Lamson patent application was filed (i.e. May 17, 2002). The Lamson patent clearly substantiates applicants position that it would be unobvious to expect any hooked fastener by itself to be capable upon

tangential contact of effectively lifting all major tennis ball brands much less being capable of lifting a tennis ball exhibiting a four fold weight increase.

What Lamson concludes as to the state of the art does not deviate from what applicant has disclosed and profusely argued before this tribunal and the Board of Appeals. Noteworthy amongst the prior art teachings of Lamson are the following:

- a) The number and diversity of devices spawned in the attempt to fulfill this need demonstrate both the long felt need for a solution, and the nonobviousness of the solution presented by the subject invention (namely using the hook and loop adhesive backing of a fastened together) conjointly so the sticky adhesive backing of the loop fastener or hook fastener may stick to the tennis ball pile.
- b) Previous fastener systems been as designed to retrieve tennis balls with a player's racquet have major or serious drawbacks. U.S. Patent No. 3,874,666, April, 1975 Ross, uses a hook material (ex. VELCRO) affixed to the end of the tennis racquet. This system does not retrieve tennis balls reliably because a tennis ball's standard covering, especially when worn, is not effectively adhered by the hook element of a hook and loop fastener system.
- c) U.S. Patent No. 4,834,393, May, 1989, Feldi, uses a strip of hook material attached to the tennis racquet by its adhesive tape backing and a tennis ball specially covered in loop fastener material. The drawback of this system is that it requires a specially designed tennis ball, increasing expense, decreasing the flexibility of use of the system, and intruding on play by introducing a ball with unusual flight characteristics.
- d) After an extensive and exhaustive review, these designs are of doubtful effectiveness because hook material will not securely grasp all tennis balls.

- e) U.S. Patent No. 4,993,712, February, 1991 Urwin, is difficult to apply, requiring careful aim to retrieve the ball.
- f) Previously attempted solutions have been plagued by elaborate and expensive design, intrusion on play, aesthetic obtrusiveness, and ineffectiveness.

Lamson recognizing that as commonly understood by the art, hooked fasteners in the absence of the mating loop fasteners (such as suggested by Feldi) or such as by a significantly increased cupped surface area of contact (Urwin) are ineffective in retrieving a tennis ball. Lamson's solution comprises a strip of double sided adhesive material, such as double sticky tape having a first adhesive side attached to the piece of sports equipment and a second adhesive side outwardly exposed to form an exposed adhesive surface for picking up the sports objects, in this case, regulation play tennis balls. How, when the very art that Examiner Chiu examined after examining applicant's parent application, can the United States Patent and Trademark Office now conclude that there existed any known hooked material which could effectively retrieve with unexpectedly superior efficacy all major brands of tennis balls when in fact the Examining Attorney should or ought to have known it was not feasible as clearly stated by Lamson? Why when, all other patents state it is not possible should one of ordinary skill seek a solution amongst hooked materials much less a highly specific and limited monofilament hook which because of its unique physical and compositional make up posses a unique and isolated ability to retrieve all major brand tennis balls? Why should it be obvious to discover on unexpected superior efficacy amongst a host of all hooked materials notoriously known to be ineffective? The applicant is required to make a full and complete disclosure of all relevant art to the United States Patent and Trademark Office. By the same token, the Examining Attorney owes an ethical responsibility to not make speculative and unfounded factual assertions which are completely contrary to the very

art which the Examining Attorney is responsible to administer. The facts of record are clear and require fair play.

Prior Art as a Whole

The final rejection fails (as in the parent application appeal) to apply the 35USC103(a) standards as commanded by the MPEP to be followed in the fair and unbiased examination of any patent application is entitled to receive and the well-established case law. The final rejection clearly:

- 1) fails to recognize the actual factual background of the prior art as existed at the time of the effective filing date;
- 2) fails to properly assess what each patent fairly teaches and suggest to the ordinary artisan;
- 3) fails to resist the hind-sighted temptation of isolating certain teachings from any cited patent and then to apply the isolated teachings in a manner completely out of context in which the respective patent teachings are found;
- 4) reads and interprets each patent as a glossary for applying disclosed elements in a manner totally out of the context in which they are found;
- 5) modifies or eliminates crucial elements and essential combinations taught by the respective patentees so as to destroy the basic and novel teachings of the patent or render it inoperable for its intended purpose;
- 6) fails to comprehend or understand that when patentees teach or disclose the use of specially manufactured mating hook fastener and loop fastener combinations designed specifically to mate and fasten together that such teachings do not extend to the use of the hook fastener by itself without the cause of the specifically designed and tailor-made mating loop fastener;

- 7) the field of hook and loop fasteners encompasses a broad array of diverse fasteners, produced by a host of manufacturers involving a myriad of physical and chemical processing procedures which can dramatically change the function and character individually of the hook component and the loop component as well as the fastening interplay between the tailor made hook and loop fastener combination and their intended use as mating fastening partners;
- 8) fails to understand that when a cited patent teaches and suggest the conjoint use of fastener combination such the Smerdon combined use of SJ3526 SCTOCHMATE for fastening together a water tubing to a bicycle handle bar stem that Smerdon does not teach that only the hook fastening unit should be used by itself;
- 9) the doctrine of equivalents does not apply to a one-of-a-kind monofilament hook material defined and claimed very precisely which possess unexpectedly superior retrieving characteristics saliently distinctive from all other hooked materials which as notoriously recognized by the art of record do not possess such a property;
- 10) when the patent literature clearly teaches the inability or inoperability of the commonly known hooked materials to effectively retrieve grounded tennis balls, the fact that applicant discovers a unique and one-of-a-kind hooked material which unexpectedly works represents the antithesis of obviousness under any 35USC103(a) standard;
- 11) there exists no expectation on the basis of fair reading of the prior art as a whole to expect any hooked material (about some sort of extrinsic aid) would possess an outstanding ability upon tangential contact to not only all major tennis ball brands but to lift a four fold weight of the tennis ball;
- 12) that if the art teaches the futility of well established and known findings and that if one discovers an unexpectedly superior efficacy by doing something the prior art consistently teaches

cannot be done, there exists under any patentability standards an obvious invention;

13) Equivalency does not exist between alleged equivalent materials which are actually different in structure, composition and function.

The entire thrust of the final rejection rests upon the common premise that all hooked materials or elements of a hook and loop combination are equivalent and therefore should lead to the inescapable conclusion that any hooked material will effectively serve to tangentially lift any tennis ball and therefore the unique claimed characteristics of applicant's monofilament element is an in-material claimed limitation. If this were true, why was it necessary for Feldi to solve the inability of the hooked material by themselves (e.g. the hooked material of the VELCRO hook and loop fastening system) and thereby cover the tennis ball with the modified VELCRO loop fastener so that the hook then would effectively engage and lift the modified tennis ball? Why was it necessary for Urwin to create a cup to cup the tennis ball so that it could then engage and lift the tennis ball from a grounded position? When Urwin mentions hook type VELCRO members, why was it necessary to create a cup so that the ineffective VELCRO hook member could then lift a tennis ball? Why does the cited Musslin patent (other than vague generalities and innuendos) fail to identify any workable "adhesive (sticking) hook"? Why do countless patents (e.g. Feldi, Urwin, Hodges - Des 355,232) issuing after Musslin (i.e. 1987) all conclude that a hooked material by itself without substantive auxiliary support are ineffective? Why in light of this consistent prior art discouragement should applicant discover her invention when all others failed? Why do all of the patentees within the last decade or so collectively teach that hooked materials alone will not work and all teach the use of an auxiliary element which overcomes the inherent deficiency of the hooked material? Why is it necessary for the Examiner to rely upon "back door teachings" which require intuitive speculative extrapolations in order to

allegedly form a basis for a 103 rejection when in fact the clear teachings of all of the enabling patents teach that what applicant has done cannot be done? Why does it become necessary to rely upon adhesive backing of VELCRO and SCOTCHMATE hook and loop fasteners when in fact the adhesive backing bears no relationship or interaction with the claimed tangential contact and lifting of a tennis ball?

The final rejection reaches the preposterous conclusion that VELCRO and SCOTCHMATE are art recognized equivalents and then erroneously concludes that all hooked fasteners are equivalent to one another. As the Board of Appeals concluded and as stressed by applicant's attorney, the VELCRO and SCOTCHMATE referenced by Melbye are standards "widely used as garment fasteners and hook-and-loop fasteners" which means a hook and loop combination of paired and manufactured paired hook and loop fasteners which serve as garment fastener. The Melbye teachings have nothing to do with the hook fasteners by itself but only the paired hook and loop combination which are used as garment fasteners. Melbye clearly illustrates the failing in attempting to group all fasteners together. The assignee of the Melbye patent is 3M who also markets its fasteners under the SCOTCHMATE mark. The Melbye patent (assigned to 3M) does not even pertain to the claimed monofilament hooked fastener component of applicant's invention but rather relates to a mushroom type hook fastener which under the rationale of the office action would also be considered to be art recognized equivalent. The reliance upon the complete unenabling and art acknowledged discredited teachings of Musslin constitutes nothing more than hind-sighted reconstruction of the prior art solely because applicant's own invention provides the sole enabling reason for doing so. The Office Action admits that none of the cited 103(a) patents disclose the recited one-of-a-kind monofilaments of the claimed hook material. By arguing tennis is an out-door sport and that the Wimbledon and

U.S. Open are out-door events "played in wet and warm conditions" (interesting to note that both the Wimbledon and U.S. Open events are perfunctory postponed when it rains) and since Smerdon teaches that SCOTCHMATE TM SJ3526 fastener (used as a hook and loop fastener combination) in wet (e.g. water tube) it naturally follows it cannot be used in Feldi (note Feldi requires a loop ball) or the discredit and non enabling Musslin patent teachings.

The final rejection by its erroneous application reveals that the rejection of applicant's claims requires applicants own teachings to make any sense of the randomly gleaned and isolated teachings of the cited patents. Wet and humid conditions have nothing to do with the astounding and unexpected embodiments of applicant's invention. All of the patents pertaining to tennis ball retrieval are concerned about the innate inability to pick up a grounded tennis ball.

Smerdon only teaches the adhesive backing properties of the SJ3526 fastener combination. The Smerdon patent neither discloses nor teaches anything other than adhesive backing characteristics of hook and loop fastener combination. Smerdon is silent as to the character and function of the monofilament hooked material other than it could be used in combination with the looped material to secure or fasten a water tube loop material to the bicycle handlebar stem hooked material.

There exists no factual or legal basis to conclude that just because VELCOR & SCOTCHMATE hook and loop fasteners are garment fasteners when used as a hook and loop fastener, that all VELCRO & SCOTCHMATE hook fasteners are equivalent to one another. Such an absurd conclusion is neither supported by the facts of record nor the controlling case law on the doctrine of equivalents. In no form or manner does any hook material function in the same manner to produce the same result as hook fastener and loop fastener combination. As clearly taught by each of the references including Melbye, Feldi and Smerdon, the hook fastener

component does not perform any effective fastening functionality without coactively engaging its mating and specially manufactured loop component. The SCOTCHMATE SJ3526 (as taught by Smerdon) only completes its intended fastening function when both the loop fastening component and hook fastening component are used as a fastening component combination. No equivalency extends beyond the combination of both the hook and loop fasteners together. There is factual and legal error to conclude that all hooked fasteners are equivalent to one another. This is obviously not true since applicant's own teachings when viewed in light of the Feldi, Melbye, Urwin, Ross and Lamson patent teachings clearly reveal that the hook fasteners are not the actual and obvious equivalent to one another.

The final rejection relies upon the alleged improved adhesive characteristics of the looped material of SCOTCHMATE SJ3526 fastener in adhering to a wet water tube when used in combination with the mating hooked material attached to the bicycle handlebar stem. Allegations that tennis is an outdoor sport that both the Wimbledon and U.S. Open are outdoor events played in wet and warm conditions elucidates the extent factual matters are distorted to support any given hypothetical position. Anyone witnessing the U.S. Open and Wimbledon are well aware that these events are postponed when the tennis court is wet. Neither event is played in the rain. To equate a wet watering tube to a postponed event because of rain seems rather far fetched.

Assuming Arguendo that all of the aforementioned major equivalency obstacles were overcome, the prior art of record as a whole would not permit the combination of references under 35USC103(a) on the grounds set forth in the final rejection. In combining any secondary reference with a primary reference, there must exist a reasonable expectation of success. In view of the prior art as a whole, how can there exist a reasonable expectation of success when all of

the enabling patents of record (namely Feldi, Urwin, Norton, Schubert, Ross, Lamson including all the patents cited in the Background of the Invention) all resoundingly teach the ineffectiveness of the hooked material in lifting all major tennis ball brands upon tangent contact and lifting? An evaluation of the invention as a whole under 35USC103(a) includes the unexpected results of the invention. There exists no expectation whatsoever that a hooked monofilament meeting the one-of-a-kind highly specific claims specifications could tangentially lift all major tennis ball brands to the amazing extent of 3 times the tennis ball weight when all other known hooked materials were knowingly ineffective by themselves as astoundingly taught by the art of record. Applicant's position as stated in the appeal brief in the parent application is very germane to the issues herein. Obviousness cannot be predicted upon the unknown or the unexpectedness both of which are clear indication of unobviousness.

The final rejection relies upon applicant's own findings including the undisclosed hook width, depth, diameter and density as a basis for rejecting applicant's claims 1, 4 and 6-15. As aptly pointed out by the Board of Appeals, none of the reference teach or suggest that hook size (i.e. monofilament diameter, hook height, hook width and hood depth) are of particular concern or essential to effective tangential engaging and lifting a grounded tennis ball. Musslin (as noted by the Board of Appeals) "provides no indicator that hook size is of concern or of importance and merely suggests that any hook material which is capable of sticking on the tennis ball would be adequate" without any enabling teachings. Smerdon fails within the same pitfall as all of the other references in that there exists no teachings or suggestions that the hook size of the monofilament hooking material is an essential embodiments to effective tangential lifting of a grounded tennis ball.

One skilled in the art would not have found it obvious to substitute the 3M

SCOTCHMATE SJ3526 and SJ3527 industrial fastener disclosed by Smerdon for the Fastener disclosed by Smerdon for the fastener disclosed shown by Feldi or Musslin. Feldi requires a racket and a tennis ball cover equipped with the hook fastener and the loop fastener combination. To dissect or exclude for example the SJ3526 or SJ3527 looped tennis ball cover from the combined teaching constitutes clearly an improper reference combination under 35USC103(a) as clearly stated in the MPEP and controlling case law.

Applicant's attorney respectfully requests the Examining attorney to make of record probative proof substantiating his position that an ordinary artisan may legally conclude that the fastening hooked component is an obvious equivalent of a hook and loop fastening combination. Applicant further specifically requests that the Examining Attorney to substantiate any claim that all hook fastening components may be fully functional upon all substrates including foreign substrates other than their intended usage with their mating loop material.

The mere fact the Smerdon notes that the pressure sensitive adhesive backing used in the fasteners should maintain good adhesion in wet and warm conditions would also suggest that the hook and loop material would have to ably perform in such conditions bears no relevancy to the facts of record or the applicable case law. The record clearly establishes (as the Examiner should well know by his examination and allowance of U.S. Patent No. 6,652,397 B1 to Lamson) that there exists no known hooked material before applicants invention which by itself without some other auxiliary support possess a capacity of effectively engaging and tangentially lifting all major brands of grounded tennis balls. Notwithstanding the non-enabling and unsuggestive and discredited Musslin teachings, all of the other patents of record clearly state that all of hooked materials are ineffective. The art of whole, as the Examiner knows, applies to any proper examination of this application under 35USC103(a).

The final rejection appear to conclude that if you assume all hooked materials may be regarded as being equivalent, that by reason hooked materials are mentioned as a part of a hook and loop fastener combination that then the hooked material may ipso facto be used for fastening purposes with any substrate other than its intended function with its mating loop material, that in patents requiring a hook and loop fastening combination that the loop fastening component may be replaced with any other substrate for fastening purposes including a tennis ball which as taught by all of the creditable references as being ineffective and non-engaging and therefore an unsuitable fastening substrate.

The Examining Attorney notes that the claims do not preclude a ball having the Smerdon loops. This argument has no merit. Applicant courtesy directs the applicants Exhibit E, pages E-1 to E-18 of Applicant's Appeal Brief and applicant's remarks in the first full paragraph on page 21 of appellant's appeal brief reply the parent application.

The rational of the paragraph bridging pages 6 and 7 involves the highest order of hindsight reconstitution of the prior art strictly in view of applicant's own teachings. The alleged inherency argument is based strictly upon speculation in complete disregard as to what the art fairly teaches and suggests to the ordinary artisan. What the Examiner proposes by the rationale of the final rejection is to do precisely what the prior art, as a whole, fairly teaches as an exercise in futility.

Why would one skilled in the art attach another hooked material to a tennis racket when all of the meritable art teachings of record say that it will not work? How could one skilled in the art believe that there existed any chance of success when all of the meritous patent teachings teach that it is doomed for failure? What purpose other than the highest order of speculation would ever prompt a skilled artisan to do what the Examiner proposes in light of patent teachings

which conflict and teach precisely the opposite from what the Examiner speculatively concludes?

The Office Action appears to rely upon an inherency argument that if one skilled in the art would engaged in a number of hypothetical extrapolations which, in effect, negate and propose precisely contrary to what the prior art as a whole teaches, the artisan would inherently produce applicant's claimed invention. In response to this erroneous position, it should be noted that inherency cannot be presumed under 35USC103(a) but must be proven.

There exists a dual duty by the United States Patent Office and a registered patent attorney practicing before the patent office to be candid and truthful in all matters and proceedings before the patent office. The comments bridging pages 11 and 12 reflect an accurate account of what transpired during a telephonic contact with United States Patent Office representative named in the final rejection of the parent application. The undersigned in the final rejection of this application was not that person.

As mentioned in applicant's last response, applicant's responses in the parent application including applicant's appeal brief, applicant's reply brief and the decision of the Board of Patent Appeals and interference appeal No. 2004-2020 and applicant's prior response are incorporated in and made a part of this response. As stated by the Board of Appeals, there exists nothing in Urwin which overcomes the deficiencies of the other references relied in the 35USC103(a) rejection. As clearly taught in applicant's background in the invention of applicants parent application, applicant's parent application appeal brief and reply brief and as verified in the background of the invention teachings of the enclosed Lamson Patent, a hooked material pursuant to Urwin must be positioned within a cupped member in order to cup and lift a tennis ball. Tangential contact and lifting of the tennis ball is not feasible for which the cup fastener of Urwin was designed to overcome. As with the Feldi ball having a new loop cover, any

combination with any other reference cannot exclude the essential cupping feature of Urwin.

In practicing the claimed embodiments of applicants claim's 8, 11 and 13-15, does one of ordinary skill when fairly appraising the respective patent teachings disregard:

- 1) The essential ball covered with a mating loop fastener so that the mating hook fastener attached to the racquet can effectively retrieve a tennis ball (to eliminate a component renders the patent inoperative for its intended use and function);
- 2) Eliminate the essential hooked material placed within a cupping member adopted to cup a tennis ball (essential to the basic and novel feature of Urwin and its operability and function);
- 3) Segregated the essential loop material from the hook material in the Smerdon bicycle watering tube and bicycle handlebar stem combination;
- 4) Disregard Feldi and Urwin an apply to Musslin a feature which is discredited by all of the reference of record including the Lamson patent which was examined and allowed by the Primary Examiner of record;

all of which constitute a complete disregard of what is required in combining references under 35USC103(a).

Method Claims 10-15

As to the rejection of applicant's method claims 8-15, the 35USC103(a) rejection rests upon purely speculative inferences based illogical conclusions which in essence contradict the patent teachings as a whole.

Method Claims 10-15 have not been rejected upon any prior art which suggests or motivates the artisan to modify the references as proposed in the Office Action (must totally revamp the patents to eliminate essential teachings so that each patent teaching functions totally

different, such as cup of *Urwin* or replace the wool tennis ball pile with a nylon fastener of *Feldi*³), especially in light of explicit teachings stating that what the Applicant has done will not work (e.g. reasonable expectation of success)⁴.

Then there exists the remaining *prima facie* criteria that the prior art references (not Applicant's teachings) must teach and suggest all the claimed limitations.⁵

There exists hundreds of different patents relating to a host of different types of fasteners, including those of a pedestal and mushroom type as well as nylon filament hook types. A host of differences exist within the broad and all encompassing field. Patents are issued upon patentable versions of these fasteners and their manufacture on a consistent basis. In addition, there exists a wide array of different manufacturers who produce different fastener combinations under different labels. The field is not so limited as the Office Action would tend to suggest which should be self-evident by the failure of the final rejection to cite even one patent or reference possessing the uniquely different claimed characteristics of Applicant's ball retrieving attachment herein. The field is vast and there exists no teaching or suggestion of record directing or motivating the artisan towards a unique claimed ball retrieving attachment of a highly specialized unique characteristic which accomplishes a feat (tangential contacting and lifting a tennis ball) which others (i.e. all of the enabling 35USC103 patents of record) said could not be achieved. Is there not clear patentability under 35USC103 to discover an unknown ball retrieving attachment of an unknown ball retrieving function to produce an unknown and unexpected result which is most astounding in view of clear unrefuted 35USC103 patent teaching stating it cannot be done? The prior art solutions are diametrically opposed (e.g. change ball cover or make cupped

³ Step 1 of obviousness criteria per M.P.E.P. 2141

⁴ Step 2 of obviousness criteria per M.P.E.P. 2141

⁵ Step 3 of obviousness criteria per M.P.E.P. 2141

retrieving attachment etc.) to Applicant's unexpected discovery and results. The prior art taught futility of Applicant's solution to a long felt need, all of which add further objective evidence as to the patentability of the claimed method claims herein. Obviousness cannot be predicated upon what was heretofore unknown. Applicant's providing a ball retrieving attachment of uniquely different claimed characteristics, applying the unique ball retriever to the tennis racket shoulder and tangentially contacting and lifting the grounded tennis ball is unique, heretofore not deemed possible and thus clearly patentable under the M.P.E.P. 35USC103 criteria.

One cannot reconcile Applicant's method Claims 10-15 with the very explicit prior art teachings relied upon in rejecting Applicant's claims. *Urwin* may attach a strip of a totally different hook and loop fastener to a shoulder of a tennis racquet for a totally different purpose of removeably attaching the cupped shaped ball retriever thereto. In *Urwin*, only the cupped shaped ball retriever retrieves the ball. In *Feldi*, only the hook-loop combination involving changing the ball cover to either a hook or loop and relying upon the other to retrieve the ball serves to retrieve a non-tennis ball therewith.

The teachings of *Feldi* and *Urwin* clearly teach that hooked materials when not used in combination with their intended mating loop fastener are ineffective and especially when used as tennis ball retrievers. Both *Feldi* and *Urwin* suggest that by dramatically changing the hooking environment, the ineffectiveness of the hooking member may be changed. *Feldi* changes the ball cover so it incorporates the mating loop of the manufactured hook and loop combination so that both serve their intended function. *Urwin* takes a somewhat different approach by creating a cupped hooking member with a very large contacting surface area to enable the hooked material to retrieve a grounded tennis ball. Both these two patents (*Feldi* and *Urwin*) which bear a latter filing date than *Musslin* confirm applicant's position that the prior recognized that hooked

members per se were ineffective for use as a tennis ball retriever. Musslin adds nothing in that its teachings are so broad and indefinite that it could include a hooked metal wire as suggested by early workers. All of the later prior art patents discredit or disregard Musslin as teaching nothing. The exhaustive listing and prior art dissertations of U.S. Patent No. 6,652,397 to Lamson (filed two years after applicant's apart application) clearly substantiates the notorious art recognized knowledge that hooked nylon monofilament members as manufactured and traditionally used with mating loop members are not effective upon a mere tangential contact to lift a grounded tennis ball. Lamson (as with Feldi, Urwin, Ross, Schubert, Bellettinia, etc.) knowing the hooked member ineffectiveness adheres one fastener member to the racket and then engages the hook and loop together so as to expose the sticky adhesive backing to lift the tennis ball therewith.

Melbye has nothing whatsoever to do with nylon monofilament hooked fasteners per se, Melbye mentions SCOTCHMATE and VELCRO garment fasteners when used as hook and loop fastener combination as intended for use by their respective manufactures. The mushroom pedestal "hook" of Melbye does not work as tennis ball retrievers and are designed as taught by Melbye for use with the specially designed pedestal receiving fastening member combination. It should not be too difficult in light of all of the teachings of record to appreciate that fastening members are specially designed so as to produce a mating interlocking combination and are not designed to work effectively outside the perimeters of combinations other than their specially designed and manufactured mating fastener combination.

There exists hundreds of patents pertaining to manufacture of mating fastener combinations (e.g. see Exhibit B of the appeal brief of applications' parent application). As disclosed in these patents, a myriad of diverse fasteners can be produced by altering the

compositional make-up and processing conditions whereby the fasteners are made. The range of fasteners and selections which are available are immense. The manufacturing suppliers and type of fastening combinations form a large and vast range of diverse products of which the Office Action overlooks.

Turning more specifically to the Smerdon Patent, the Smerdon Patent mentions SJ3526 and SJ3527 SCOTCHMATE are mating hook and loop fasteners which have an adhesive backing reportedly water resistant to wetness created about a cyclist wet drinking tube apparently wetted by spillage by drinking from the tube.

The Smerdon patent is silent to any characteristic of either the hook fastener or the loop fastener component. The loop fastener is described as possessing good adherence to the wet water tube. The loop fastener allows the water tube to be fastened to the hook fastening component which is secured to a handlebar stem. Smerdon neither remotely teaches nor suggest the hooking component may be used alone much less alone to tangentially lift a grounded tennis ball.

Taken to its logical conclusion, the manner in which Smerdon has been applied against applicant's claims would in essence mean that no matter how far fetched the rationale for combining the 35USC103(a) references, the mere mention of a one common factor no matter how far removed from the task-at-hand would bar patentability of any invention by reason of obviousness. All of the obviousness tests would then become meaningless by the dominating reason that all hook and loop fastener are equipped with adhesive backings.

The Smerdon illogic of the final rejection becomes readily apparent when applied to applicant's method claims. There exists unrefuted evidence of record that the monofilament nylon hook component is ineffective and incapable of tangentially lifting all major brands of a

conventional tennis ball. The method of Smerdon involves adhesively applying the hook and loop fastening components to a water tube and a bicycle handlebar stem.

The obviousness issue hinges to what the prior art teaches, as a whole, coupled with a reasonable expectation of success. Why would that mystical artisan of ordinary skill remotely consider attaching another hook fastener to a tennis racquet to tangentially lift and retrieve a tennis ball, when the very art relied upon by the Examiner clearly states the hook material by itself to be ineffective. All patentees searched for a different alternative. Applicant again reminds the Examining Attorney of Feldi, Urwin, Ross, etc., and the Lamson patent which provides an excellent summary of the state of the art and alternate solution of using sticking or gluey adhesive backing of the fastening components since the hook component will not effectively work.

Applicant's method claims are directed towards "tangentially contacting and intermingling the felt nap of the grounded tennis ball --- so as to engaged and hook onto the felt pile", lifting the hooked tennis ball and retrieving the tennis ball by all of which the adhesive backing of the hook and loop fastener component bears no relevancy. The irrelevant adhesive teachings of Smerdon bear no relevancy toward the method as claimed by applicant herein. Smerdon alone or in combination with the other references provides no motivation or suggestion of applicants claimed invention. There can exist no reasonable expectation of success of applicant's method claims simply upon the basis both the loop fastener and hook fastener have good adhesive backing for attaching beverage water tubing to bicycle handlebar stem. Where is the motivation or the expectation of success when the prior art resoundingly states that it is doomed for failure and cannot exceed?

The invention, as a whole, not only includes how the method is conducted but also what

the method accomplishes. Applicant's claimed method not only tangentially lifts a tennis ball (all major brands) but is capable of lifting three times the tennis ball weight, a phenomenal result especially in view of the prior art teaching that it cannot be done. The expectation that it will not work coupled with the unexpected superior in tangential lifting efficacy provide powerful indicia of the unobviousness of method claims 10-15.

The application of Smerdon as a third tier reference and applied in a manner which strains the sanity of an ordinary artisan rests upon a series of far fetched alleged factual presumptions. These presumptions include segregating the hook fasteners from the hook and loop fastener garment fastening combination of Melbye, equating a wet watering tube adhesive loop fastener backing with the Wimbledon and U.S. Open tennis championships (which according to the final rejection are played in "rain" and "wet conditions") so as to equate to the wet watering tube, there exists an adhesive problem with Feldi, Ross, Urwin, Lamson, etc., when no such problem is alluded by any of the patentees, the Melbye mushroom type male and female fastening components can be equated to a nylon monofilament fasteners, a bicycle handlebar stem and bicycle watering tube use of a hook and loop fastening combination may be equated to the use of a hooking component outside its normal usage to exhibit unknown and completely unexpected tangential tennis ball retrieval efficacy, the skilled artisan cognizant that all known hooked elements are incapable upon tangential contact to hook and lift all major tennis ball brands would inherently produce the claimed embodiments of applicant's method claims 10-15 when all of the enabling and meritorious patent teachings say it cannot be done, the skilled artisans will naturally and inherently conduct certain acts and practices contrary to clear patent teachings stating that such efforts are bound to fail (e.g. what Examiner suggest via Smerdon falls within the ambit).

The adhesive problem and hypothetical basis for applying Smerdon to Feldi or Musslin

bears no relevancy to the problem or the unexpected results achieved under applicant's claimed method claims 10-15. There exists nothing in the prior art which would suggest or remotely teach that such a grounded tennis ball retrieval method could be accomplished much less the unexpected results of the claimed invention when all the prior art and applicant's own teachings overwhelm the contradict the essence of the Examiner's 35USC103(a) rejection, then the overwhelming and uncontradicted prior art teachings should prevail.

There exists nothing which would remotely teach as suggest that any nylon monofilament hook would have the efficacy discovered by applicant and applicant alone. The monofilament hook requirements of claims 10-15 define a very unique and highly specialized (one-of-a-kind) hooking component which possess unique and unknown ball retrieving attributes, If applicant's invention were as obvious as the Examiner contends, then why have all of the enabling patentees (e.g. see Ross, Urwin, Feldi, Lamson, etc.) resoundly pointed out that what applicant has accomplished cannot be done?

Applicant's method claims set upon very tight tolerance for the nylon monofilament hook and what is required to provide the unexpected results. As pointed out, the appeal brief of appellant's patent application there exists literally hundreds of companies which provides a host of different types of fastener combinations. The patent literature as pointed out in the appeal brief, provides manufacturing processes which are able to produce an infinite number of different types of fastener combinations. The combinations and selections involve a large class of materials, all of which as relied in the final rejection are strictly based upon the use of the hook and loop fastener combination, not the hook components by itself.

Applicant's attorney believes that this response should place Applicant's application in condition for allowance. If for any reason the application is not considered to be in condition for

allowance, Applicant's attorney requests a telephone interview with Examiner Chiu so as to discuss the merits of this application and avoid an otherwise inevitable appeal.

The Applicant respectfully submits that the pending and finally rejected claims comply with the 35USC103 requirements, define novel and unobviousness subject matter over the art of record, and place the claims in condition for allowance. Reconsideration and withdrawal of the final rejection, and an early allowance of this application are respectfully requested.

Dated this 11th day of October, 2005.

Respectfully submitted,



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